

# The Boston Medical and Surgical Journal

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## Original Articles.

### OBESITY: OBSERVATIONS ON ONE THOUSAND CASES.\*

BY WILLIAM E. PREBLE, M.D., BOSTON.

#### I. INTRODUCTION.

CONSIDERING the prevalence and gravity of the condition known as obesity, it is rather surprising to note the paucity of scientific literature on the subject in the last two decades. In the "lay" press, Irving S. Cobb, Samuel G. Blythe, and others have written more or less valuable (?) articles on the subject in jocular vein, but a perusal of the mortality statistics reveals the fact that obesity is no joke. Persons thirty years of age and on, who are fifteen pounds or more over-weight, have a rapidly decreasing life expectancy with increase of years and weight.

Most fat patients like to ascribe their condition to heredity, or to some peculiar quirk in their body chemistry, or to some mysterious abnormality of their endocrine system, but ex-

amination of the literature and scientific investigations reveals the fact that the cause in the overwhelming majority of cases lies in their habits of eating. In other words, obesity is a habit, and a dangerous habit at that.

#### II. SOURCES OF MATERIAL AND DATA OBTAINED.

Of the 1000 cases on which I am making personal observations, 700 are taken from my case records in private practice, and 300 from the records of the Medical Department of the Boston Dispensary. Tabulations have been made showing blood-pressure averages by decades and for the whole group, the incidence of organic and functional heart and kidney disease, the incidence of glycosuria, and the results of treatment in all cases reduced 10 or more pounds in weight. In diagnosing obesity, life insurance tables of normal weights<sup>1</sup> are used, and no patient is considered obese unless 10 pounds or more over-weight. Many of the cases from my private records were seen in consultation, hence end-results on these cannot be given.

#### III. DATA ON 1000 CASES OF OBESITY.

The first point to which I want to call attention is the age incidence of obesity in patients coming for treatment. Table I shows the results of tabulation in this series.

\*Read before the New Brunswick Medical Society, July 18, 1922.

Table I. Obesity by Age Groups. 1000 Cases.

Age	0-20	21-30	31-40	41-50	51-60	61-70	71—Total
Men	1	11	53	85	68	18	244
Women	7	65	178	238	196	62	756
Total	8	76	231	323	264	80	1000

You will note that up to 30 years of age and beyond 60 there are comparatively few cases. This is especially noticeable in women, and includes the years in and following the child-bearing period. This may be in part due to the fact that obstetricians and pediatricians consider it necessary to "feed up" the ante- and post-partum patient without due regard to the general well-being of the patient.

The next point to which I wish to call attention is the effect of over-weight on the blood pressure. Table II shows averages by age groups for the 1000 cases.

Table II. Blood Pressure by Age Groups at 1st Visit. 1000 Cases.

Age	0-20	21-30	31-40	41-50	51-60	61-70	71
Sys.	111	130	136	152	162	172	163
Dias.	72	84	89	98	102	103	103

Note that for each age group above 20 years the blood pressure is well above the normal figures.

The next table shows by age groups the effect on blood pressure of reducing the weight 10 or more pounds.

Table III. Blood Pressure before Treatment—194 Cases.

Age	0-20	21-30	31-40	41-50	51-60	61-70	71
Sys.	130	129	147	157	165	180	179
Dias.	80	88	101	101	98	113	95

After reducing 10 pounds or more

Sys.	115	124	132	141	143	166	159
Dias.	70	81	90	89	90	102	86

Average: Before, 155-96; after, 133-86.

Note that in all groups the blood pressure has dropped, and in all but the 21-30 group it has dropped 14 or more points. Also, note that the diastolic pressure has dropped seven or more points in each group.

While there are a few individual cases in which reducing weight does not drop the blood pressure, the number is so small that they are negligible as compared with the whole series. The average drop for the whole group is 18 points systolic and 10 points diastolic.

In the 1000 cases 62 had a systolic blood pressure of 200 or more. Of the 22 of these treated by reducing the weight 10 or more pounds, the average blood pressure dropped from 219-129 to 176-108, an average drop of 43 points systolic and 21 points diastolic.

Of this series of 62 cases, 40 showed evidence of organic heart disease and 18 evidence of chronic nephritis.

In an attempt to ascertain what is normal blood pressure in persons over 50 years of age, I ran over the records of approximately 4000 cases in private practice. I found but 66 cases 50 years old or over without evidence of heart, kidney, arterial disease, or obesity. The average blood pressure for this series was 143-97. Woley's<sup>2</sup> figures for average systolic pressure are 132 for ages 50 to 60, and 135 for ages 60 to 65. Fisher's<sup>3</sup> figures for ages 51 to 55 are 132 systolic, and ages 56 to 60 135 systolic. It seems probable that the "100 plus age, minus 10" rule does not hold good for people past middle life.

The next table shows the incidence of heart disease, both organic and functional, in the 1000 cases. In the organic group are included cases with or without a murmur, plus other signs of heart disease, such as hypertrophy, marked dyspnea, edema of extremities, etc. In the functional group are cases with a murmur, and without other signs of cardiac impairment. Another group shows all cases with a definite cardiac murmur, with or without signs of cardiac impairment. I shall refer to this latter group later.

Table IV. Incidence of Heart Disease—1000 Cases.

	No. Treated		Blood Pressure		Blood Pressure	
			1st visit		10 lbs. off	
			Sys. Dias.		Sys. Dias.	
Organic	432	97	163	106	146	77
Functional	230	51	153	97	138	85
Total	662					
			Persist Disappear			
Murmurs	467	124	119		5	

Note that 432 cases show evidence of organic, and 230 of functional heart disease. A total of 662 show evidence of some cardiac impairment. Some 467 have murmurs, and of the 124 in this group that dropped 10 or more pounds, five lost their murmurs. The average blood pressure of the group before and after reducing weight 10 or more pounds is shown at the right of the table.

Evidence of kidney impairment is shown in 463 cases of the 1000. Chronic nephritis was diagnosed in 53 cases, and albuminuria without nephritis was found in 410. The results of treatment are shown at the right of Table V.

Table V. Incidence of Kidney Disease. 1000 Cases.

	No. Treated		Blood Pressure		Blood Pressure	
			1st visit		10 lbs. off	
			Sys. Dias.		Sys. Dias.	
Chronic Nephritis	53	14	193	129	172	107
Albumin in Urine Without Nephritis	410	52	33			
Urine Without Nephritis			Disappears			
Total	463					

The next table shows the incidence of glycosuria in 700 consecutive cases by age groups.

Table VI. Sugar in Urine by Age Groups—700 Cases.

Age	0-20	21-30	31-40	41-50	51-60	61-70	71
Number	0	0	5	23	16	7	2

Total number 53 cases in 700=75.7 in 1000.

According to Joslin<sup>4</sup> one in every hundred of the population has or may develop diabetes. The above figures show an incidence of glycosuria, and presumably of diabetes of over  $7\frac{1}{2}$  times this normal figure.

**Blood Chemistry.**—Very little work has been done on the blood chemistry of the obese. Beeler and Fitz<sup>7</sup> have recently reported a series of 32 cases in which observations were made on blood sugar before and after taking 100 gm. of glucose on fasting stomach. Four had a fasting blood sugar of over 150 mg., and 28 were within normal limits. We have made observations as regards non-proteid nitrogen and blood sugar on 31 obese patients without diabetes or chronic nephritis. These patients all had a light breakfast, and the blood was taken three hours or more later. The lowest non-proteid nitrogen figure was 31.3 mg. per 100 c.c., and the highest was 46.8—all within normal limits. The blood sugar figures are between 82 mg. low, and 125 mg. high—all within normal limits. The methods used in blood analysis were those of Folin and Wu.<sup>6</sup>

Table VII. Blood Chemistry.

	No. Cases	High Mg. per 100 c.c.	Low Mg. per 100 c.c.	No. within Normal limits
Non proteid N.	31	46.8	31.3	31
Sugar	31	125.0	82.0	31

**Basal Metabolism.**—In 1915 Means<sup>7</sup> published observations on the basal metabolism of four cases of obesity, and in 1916<sup>8</sup> added eight more to the series. Of the 12 cases, two had a basal metabolism of over 10 per cent. below normal, and one of over 15 per cent. below normal. Five were slightly below normal and seven slightly above. We have done the basal metabolism on 11 cases, and Dr. Frank H. Lahey has furnished me figures on 14 and Dr. Frederick W. O'Brien on two making a total of 27 cases. In this series seven were over 10 per cent. plus and four over 15 per cent. plus. Four were over 10 per cent. minus, and one over 15 per cent. minus. Only two in this series showed evidence of thyroid disturbance; one with a 41 per cent. plus showed slight evidence of hyperthyroidism, and one with 8 per cent. minus had an enlarged thyroid, and suggested mild hypothyroidism.

Taking Means' series and my own together—a total of 39 cases—21 were slightly above the normal standard and 18 slightly below; that is, the variation from the standard is about equal each way. I think we are justified in assuming

that the basal metabolism in the obese as a class is within normal limits, and that the ductless glands are rarely an etiological factor.

## IV. MORTALITY STATISTICS.

Our most valuable information regarding the mortality of the obese is obtained from the reports of investigations made by various life insurance companies. The Northwestern Mutual Life Insurance Company<sup>9</sup> investigated the mortality figures of their heavyweights from 1886 to 1895, inclusive, and compared results with 157,815 policies of normal weights. In 4954 policies written on persons one to fifteen pounds in excess of their maximum the mortality was 120 per cent. of normal. In 1916 policies on persons 15 or more pounds over their maximum, the mortality was 139 per cent. of normal. In a total of 8421 cases, ages 20 to 62, inclusive, the death rate was 125 per cent. of normal.

The most extensive investigation ever made was by a committee acting for about 30 of the larger insurance companies a few years ago. They give data on 744,672 policy holders, all under or over normal weight.<sup>10</sup> This included about 213,000 men and 50,000 women, all over weight. Table VIII shows the mortality of the men by weight groups.

Table VIII. Men of All Ages—212,879 Cases. Overweights.

Variation from Average weight	Number Entering	Actual Deaths	Expected Deaths	Ratio to Normal Death Rate
Average	24,525	1,381	1,422	97%
+5 lbs.	20,412	1,176	1,188	99 "
+10 "	16,453	970	969	97 "
+15-20 "	22,363	1,497	1,443	104 "
+25-30 "	14,520	1,297	1,122	113 "
+35-45 "	54,295	5,061	3,876	131 "
+50-60 "	46,417	3,697	2,563	144 "
+65-80 "	12,119	1,144	695	165 "
+85 and more "	1,775	236	106	223 "

It is interesting to note in the above table that up to 10 pounds over-weight there is no increase in mortality, but above that figure the mortality rises steadily and alarmingly. We may consider, then, that obesity as a disease begins at about 10 pounds over-weight. Table IX gives similar data on women.

Table IX. Women of All Ages—49,599 Cases. Overweights.

Variation from Average weight	Number Entering	Actual Deaths	Expected Deaths	Ratio to Normal Death Rate
Average	9744	342	325.4	105%
+5 to +10 lbs.	15,290	537	531.1	101 "
+15 to +20 "	9343	400	349.5	114 "
+25 to +30 "	5432	275	251.4	109 "
+35 to +45 "	6304	446	364.4	122 "
+50 to +60 "	3031	168	140.0	120 "
+65 to +80 "	696	58	36.8	157 "
+85 and more "	89	4	4.8	—

Here, again, there is little increase in mortality up to 10 pounds over-weight, but from that

figure on there is a marked increase, although the variation from normal is not so marked as with the men, probably because women as a class are not so active as men.

The next table is interesting, as it gives the relative mortality both by age groups and by weight groups.

Table X. Men. Ratio of Actual to Expected Deaths. Overweights.

Ages at Entry	Variation from Average Weight in Pounds			
	5-10 lbs. Overweight	15-20 lbs. Overweight	25-45 lbs. Overweight	50-80 lbs. Overweight
20-24 yrs.	96%	96%	101%	103%
25-29 "	93	90	112	117
30-34 "	99	86	119	134
35-39 "	100	101	131	155
40-44 "	91	110	140	175
45-49 "	103	109	131	151
50-56 "	102	121	124	149
57-62 "	102	125	112	138

Note here that there is no marked increase in mortality up to age 25, even in the very obese. At age 30 the mortality rises, from 15 pounds over-weight and upward, and from age 40 on, the rise is rapid, increasing with the amount of over-weight. The decrease in mortality after age 50 is probably due to the very careful scrutiny given over-weights by the medical examiners after this age, *i.e.*, only exceptionally good risks are accepted.

It should be remembered that all of the above data were taken from policy holders, accepted for insurance by the medical examiners; hence it is fair to assume that the mortality of the obese as a class would be considerably higher than these figures show.

The query naturally arises, why do fat people die sooner than those of normal weight? Some statistics, compiled by the Connecticut Mutual Life Insurance Company<sup>11</sup> of 26,222 deaths from all causes, help us in answering this question. These cases were all either under- or over-weight. Table XI gives the mortality findings in diseases varying markedly from the normal rate.

Table XI. 26,222 Deaths—All Over- or Under-Weight.

	Under	Over
Diabetes	0.0%	3.5%
Heart Disease	6.0	15.5
All Circulatory Diseases	7.8	17.7
Kidney Disease	5.2	9.7

The figures for the under-weights are approximately those of normal weights, and may be used for comparison.

Note that there were no deaths from diabetes in the under-weights; that the mortality from heart disease is about two and one-half times as great; from all circulatory diseases, over twice

as great; and from kidney disease, nearly twice as great as in the under-weights, or normal weights.

Comparing these figures with those from the last United States Mortality Statistics<sup>12</sup> we find the death rate of the obese is about 150 per cent. of the normal from both heart and kidney disease.

I haven't the figures for pneumonia, but the high mortality of the obese from this disease is an accepted fact with the medical profession.

I want to call attention for a moment to the subject of so-called functional heart disease. This term is usually applied to cases that have a murmur, usually systolic, without other evidence of cardiac impairment. The present tendency of our cardiologists is to minimize the importance of these murmurs, some even asserting that they do not show evidence of any cardiac impairment. They base this opinion on the fact that many of these cases show no gross valvular pathology at autopsy.

The evidence offered by Rogers and Hunter<sup>13</sup> in an investigation of 7025 policy holders all having "mitral regurgitation" without hypertrophy or evidence of other cardiac impairment, does not substantiate the above doctrine, as undoubtedly a high percentage of these cases would fall in the class now diagnosed as functional cardiacs. Table XII shows the mortality figures for these cases, insured in 1896 to 1917, inclusive, and observed to their anniversaries in 1918.

Table XII. Mitral Regurgitation Without Hypertrophy—7025 Cases (No Other Impairment.)

Ages at Issue	Actual Deaths	Expected Deaths	Ratio to Normal Death Rate
15-29 yrs.	135	79.0	171%
30-39 "	148	73.5	201
40 and over	121	71.3	170
All ages	404	223.8	181%

Of the 404 deaths, 149, or 37 per cent., were due to organic heart disease—about 10 times the normal rate. Bright's disease and pneumonia each showed about double the normal death rate.

It seems evident from the above statistics that so-called "functional heart disease" is much more serious than our cardiologists would have us believe.

Jaquith<sup>14</sup> quotes a study of 5000 similar cases, agreeing in general with the findings of Rogers and Hunter.

Parmenter<sup>15</sup> in an investigation of cardiac conditions in Harvard athletes concludes that the athletes without murmurs are more efficient physically than those who have these so-called functional murmurs.

Another point to which I wish to call attention is the mortality rate for cases with high blood pressure. Fisher<sup>16</sup> has reported the results of an investigation on a series of 1880

cases refused life insurance because of high blood pressure only, from August, 1907, to August, 1917. Table XIII shows the results.

Table XIII. Risks Rejected—High Blood Pressure Only.

Mm. Hg. Over Average pressure for age	Number	Expected Deaths	Actual Deaths	Ratio to Normal Death Rate
10-14 Mm. Hg.	121	5.5	7	128%
15-24 Mm. Hg.	630	26.0	34	130
25-34 Mm. Hg.	499	24.0	33	137
35-49 Mm. Hg.	374	22.9	46	200
50-Mm. Hg. and Over	256	13.9	35	251
Total	1880	93.5	155	167%

Note the remarkable increase in the death rate as compared with normal risks.

Now turn to Table IV, showing the incidence of heart disease in the obese, and to Tables II and III, showing the effect of obesity on blood pressure and the results of treatment, and the relation of the last two paragraphs to the subject of this paper is obvious.

#### V. TREATMENT OF OBESITY.

Time does not permit of any detailed description of methods of treatment of this condition. Regulation of the diet is the important thing. Only in rare cases is glandular or other drug therapy indicated. I have yet to see any successful "system" of reducing weight advocated by the profession or advertised by laymen that does not include regulation of the diet. The cause of obesity may be simply too much food, but it is more apt to be an excess of carbohydrate or fat, or both, in the diet.

The diet and daily habits as regards work, exercise, sleep, etc., of the individual patient must be carefully scrutinized, and excesses corrected. Care should be taken that the patient gets enough proteid, otherwise weakness will result. A rather high proteid diet—90 to 110 grams—is prescribed except for nephritides, in which class the amount is regulated according to kidney function. Careful follow-up, with frequent urinalysis has never, in my experience, revealed any untoward renal sequelae resulting from treatment.

Patients should be seen rather frequently in order to keep them in the straight and narrow path, and to be sure they get a well-balanced diet. In a former paper<sup>17</sup> I outlined treatment in some detail, and the principles laid down at that time still hold good. Success in reducing weight is obtained in 100 per cent. of the cases that cooperate with the physician.

#### VI. SUMMARY.

1. Obesity is almost invariably due to bad dietary habits, and not to errors in metabolism, or to heredity.
2. Over-weight of 15 or more pounds is an

increasingly serious condition with advancing years, conducive to heart, arterial and kidney disease, diabetes, and hypertension.

3. Obesity is easily curable, and it is the duty of the physician to acquaint his patient and the community with the gravity of the condition, and the ease with which it can be controlled.

In conclusion I want to express my appreciation of the valuable advice and assistance given me by several of my brother physicians and other professional workers:

Dr. I. Haines, Medical Director of the John Hancock Mutual Life Insurance Company; Dr. Frederick W. O'Brien and Dr. Frank H. Lahey, who were responsible for the basal metabolism work; several of the professional staff of the Boston Dispensary, especially Dr. W. A. Hinton, the Director of the Laboratory, who supervised the blood chemistry findings; Dr. Morris Silberg, my House Officer; Miss Frances Stern, the Director of the Food Clinic; and Mrs. Mary V. Beyer, my Clinical Secretary; and last but not least, Miss Louise A. Reilly, my Personal Secretary, without whose efficient and painstaking tabulations this paper would not have been possible.

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#### CANCER OF THE PROSTATE.

BY GEORGE GILBERT SMITH, M.D., F.A.C.S., BOSTON.

*Occurrence.*—One man in 12 will have prostatic trouble sometime during the "prostatic age." Of these men, about 20 per cent. have cancer of that gland. Some observers report a much higher percentage, but the estimate of those best qualified to know place it around 20 per cent. Wilson and McGrath of the Mayo

Clinic found that of 469 specimens of prostatic tissue removed at operation 15.5 per cent. were malignant. Undoubtedly there were malignant prostates examined at the clinic but not operated upon, so that this estimate in so far as it refers to the actual incidence of cancer is low. That this is so the figures by Judd from the same clinic bear witness. He states that in 878 prostatectomies cancer was found 93 times while 84 cases were diagnosed as malignant but were not operated upon. This gives a proportion of 20 per cent. Hugh Young in the study of 500 prostates found one out of every five cases of enlarged prostate to be carcinomatous.

Carcinoma tends to occur somewhat earlier than do adenomatous changes. It has been reported by Gardner and Cummings in a boy of 17 and may be found in men of any age over 45. In the 35 whose records I have, two were in the fifth decade, 10 in the sixth, 19 in the seventh, three in the eighth, and one in the ninth. Geraghty states that the age at which cancer of the prostate occurs does not materially differ from the age at which obstructive changes from adenoma occur.

*Pathology.*—The prostate has been shown by Lowsley and others to be composed of a posterior lobe which is situated beneath the floor of the prostatic urethra, and two lateral lobes situated on either side of the prostatic urethra. These lateral lobes are united posteriorly by a middle lobe and anteriorly by the anterior commissure, which, although it shows prostatic tissue in fetal life, consists simply of fibrous tissue in the adult. Posteriorly the gland, as a whole, is limited by the fascia of Denonvillier, which is a strong sheet of fascia extending from the triangular ligament to the tips of the seminal vesicles. This fascia is of importance, as it arrests the backward extension of the growth. The most complete work, so far as I know, upon cancer of the prostate has been done by Geraghty of Johns Hopkins. In a study of 50 cases of cancer of the prostate he found that in 75 per cent. the cancer was associated with hypertrophy. In 25 per cent. there was no demonstrable hypertrophy. Of the 38 cases in which adenoma and cancer were present at the same time, in every instance but one, the posterior lobe was cancerous. In one case a nodule of cancer was found in the anterior commissure. Geraghty's belief is that in prostates which are not the seat of adenomatous change cancer may begin anywhere; in those exhibiting adenomatous changes the cancer practically always begins in the posterior lobe. His specimens showed that the capsule which may be demonstrated between the adenomatous lateral lobes and the posterior lobe hinders the spread of the cancer into the lateral lobes. They may become involved, but only after some time. Posteriorly the expansion of the cancer is limited to a surprising degree by the fascia of Denonvillier. Confined between these two fas-

ciae the growth tends to extend upwards under the base of the bladder between the seminal vesicles and the bladder wall. In this region it forms the intervessel plateau, which was described by Young. Invasion of the bladder is from beneath the trigone, not very frequently at the bladder neck. The limitation of the growth by the fascia of Denonvillier explains why advanced cases so infrequently show any involvement of the rectum. If this involvement does occur it is high up in the neighborhood of the upper ends of the seminal vesicles.

As regards the type of carcinoma Geraghty found that seven out of twelve are of the scirrhous type. In some of these the fibrous stroma may be so dense that the cancer cells are barely recognizable. In contrast to the scirrhous type is the adeno-carcinoma, which may be composed almost entirely of acini with very little stroma. The typical cell of cancer of the prostate is a broad cylindrical cell with clear protoplasm and nucleus placed in the center of the cell. These cells tend to grow in strands across the lumen of the acini. When they invade an adenomatous lobe they spread along the ducts and appear to line the acini. Cancer of the prostate may be of very slow development. Cases have been observed in which for a number of years very little progress has taken place. In other cases metastasis is early. The first symptoms of trouble may be the appearance of the growth in some remote spot, as, for example, the glands of the neck. The frequency of metastasis in the bones was first pointed out by Von Recklinghausen. The degree to which it may develop has been shown by Perrier. He reports two cases of carcinoma of the prostate in which complete autopsy was done. One case showed nodules in the liver, lungs, cervical glands, adrenals, pelvis, lumbar spine, iliac bone, and corpus cavernosum. The other showed metastases in all the vertebrae, the sternum, and some of the ribs. In the first case the cancer was an adeno-carcinoma; in the second it was scirrhous carcinoma. Sections from the second case showed the carcinomatous cells growing into the veins. Bumpus of the Mayo Clinic divides cancer of the prostate into two groups: those growths which are small and insignificant locally, but which metastasize freely, and the large, obstructing prostates with few metastases. It may be that the latter depend for their obstructive effect upon a considerable element of adenomatous change. He found that in one-third of all cases seen at the Mayo Clinic, x-ray showed metastases in the bones.

*Symptomatology.*—The symptoms of prostatic cancer depend upon the pathology. They may be divided into four groups: obstructive, as evidenced by difficulty in voiding or by complete retention; irritative, evidenced by frequent, burning urination and little residuum; ulcerative, evidenced by hematuria; and metastatic, evidenced most frequently by pain in the back or along the sciatic nerve. Occasionally, as in

one of my cases, the first sign of trouble is the enlargement of the pelvic or inguinal lymph glands. In the 34 cases whose symptoms I have analyzed, the earliest symptoms were obstructive in 23, irritative in six, ulcerative in two, metastatic in three. Hematuria was the first prominent symptom in two, was a secondary symptom in 7, and was not noted in the history at all in 23. Judd found hematuria present in 21.9 per cent. of the Mayo Clinic cases, and thought that it was usually a late symptom.

It is important to remember that pain due to metastases may be the first symptom. Consequently every man complaining of persistent back pain or sciatica should be examined rectally for evidences of prostatic carcinoma. Perrier has pointed out that bony metastases may be derived from a prostate that is not abnormal in shape or size, but only in consistency.

**Diagnosis.**—The early diagnosis of cancer of the prostate is necessary in order that an attempt at radical removal may be made. The various writers upon this subject insist upon the value of *induration* as a diagnostic point. In the case of an obstructing prostate the differential diagnosis between an adenomatous prostate and one in which the obstruction is due to cancer is very easy. The history of the former is one of slow development of symptoms. There will probably be a history of nocturia dating back over several years. There may have been attacks of complete retention between which the patient has been fairly comfortable. As a rule, there is little pain associated with adenoma of the prostate except the pain due to distention of the bladder. The history of cancer of the prostate, on the contrary, is likely to be brief with a rapid development of symptoms. This has been pointed out by Gunn. Pain in the prostate, in the legs and back is characteristic. The occurrence of symptoms referred to the prostate and unaccompanied by retention is very suggestive of carcinoma of that gland. Upon rectal examination the adenomatous prostate presents a smooth, symmetrical surface to which there is a definite feeling of elasticity. The groove between the prostate and the pelvic walls is well defined. The prostate seems slightly movable on palpation. The carcinomatous prostate, on the contrary, presents to the examining finger a hard, woody feeling. The surface may be slightly irregular or it may be smooth. There is a sensation as if the gland were firmly fixed in the pelvis. In early cases the sulcus surrounding the prostate will be well defined; later the entire region of prostate and seminal vesicles feels as though a mass of melted rubber had been poured into the pelvis and allowed to harden. There is no line of demarcation between pelvic walls and prostate, and as high as the finger can reach the mass extends across the anterior wall of the rectum. Another characteristic of the carcinomatous prostate is its abrupt elevation on the anterior rectal wall.

As the finger enters the rectum it encounters a ledge of firm tissue about one-quarter of an inch above the anal sphincter. The elevation of the adenomatous prostate begins gradually at a point considerably higher in the rectum.

When an adenomatous prostate contains areas of malignancy these may not be distinguishable upon palpation, or they may be felt as hard nodules or as ill-defined firm areas in the otherwise soft tissue of the gland. Upon passage of a catheter through the posterior urethra the malignant prostate offers a feeling of gradual obstruction, one might say. The catheter feels as though it were being passed through a cartilaginous tube. In the case of adenomatous prostates the catheter meets obstruction at the bladder neck but the obstruction has a yielding quality which is markedly different from the resistance offered by a carcinomatous prostate.

Other diseases of the prostate which must be differentiated, as given by MacGowan, are: (1) chronic parenchymatous prostatitis, (2) low grade abscess of the prostate, (3) primary tuberculosis of the prostate, (4) prostatic stone, (5) atrophy of prostatic tissue with interstitial, inflammatory changes, (6) contracture, (7) sarcoma. Numbers 1, 2, 3, 5, and 6 are dependent upon inflammatory changes, and their diagnosis is suggested if the secretion expressed from the prostate shows a quantity of pus. There is also to the educated touch a difference between the hardness of inflammation, which has a certain doughy quality, and that of cancer, which is much more resistant. In some cases, however, the diagnosis between the small, fibrous prostate and the early carcinomatous prostate is very difficult to make. One may be assisted in this diagnosis by bearing in mind the fact that cancer is likely to develop first in the posterior lobe, whereas fibrous changes occur in the median and lateral lobes.

In estimating the extent of the cancer the cystoscope is of the greatest value. It is only by inspection of the bladder that one can tell whether the growth has involved the trigone, and whether the obstruction is due to adenomatous elements in the prostate, or to carcinomatous involvement of the bladder neck. Some writers have mentioned the occurrence of nodules in the posterior urethra visible through the urethroscope, but these nodules are likely to be a rather late development.

**Prognosis.**—The prognosis in untreated cancer of the prostate is altogether bad. The disease may be very slow to develop and the patient may experience a number of years of comparative comfort before obstruction becomes complete enough to require relief. Bumpus found that the average duration of life in patients with untreated cancer of the prostate was three years from the onset of symptoms. Patients with cancer of the prostate seem to die very hard and the final illness is likely to be a matter of months. With such an outlook there is great incentive

to find some way of relieving the patient's suffering. This brings us to the question of treatment of cancer of the prostate.

**Treatment.**—The treatment of the cancerous prostate by radium alone has been tried out by a number of urologists. Hugh Young has advocated the application of radium by rectum, urethra and bladder, giving a number of brief exposures. The Mayo Clinic has tried this method, and also the method of Barringer of New York, which consists of inserting needles bearing radium in their tips through the perineum into the prostate. At the Huntington Hospital we have tried the latter method in a few cases, but have been unable to remove the obstruction. In one case an extensive periprostatic abscess followed the procedure. At the Brady Institute at Johns Hopkins radium alone was tried in 150 cases, but, according to Geraghty, while the consistency of the gland was altered, the obstruction was not removed, and in prostates removed after radiation, some areas of apparently vigorous carcinoma could always be demonstrated. It is practically impossible to radiate a malignant prostate so that all parts of the gland receive a uniform, lethal dose. If radiation powerful enough to kill all the cancer is given, much of the gland will be necrosed by the rays. This leaves a sloughing, infected area, the extent of which cannot be accurately governed; this area is improperly drained. The procedure is unsurgical.

For these reasons those men who have employed radium to any extent have come to the conclusion that as an adjunct to surgery it is very valuable, but that by itself it is of little use. Geraghty believes that in 95 per cent. of these cases surgery alone cannot be expected to effect a cure, but that combined with radium, early radical surgery will yield encouraging results. With this Bumpus and Barringer agree.

During the past four years I have seen about 40 cases of prostatic cancer at the Huntington Hospital, the Massachusetts General Hospital, and in my own practice. A number of these had been operated upon by other men, and were seen with a view to postoperative radiation, or were sent for radiation when the growth had recurred beyond hope of alleviation. Thirty cases were seen before any operative treatment had been instituted. In order to clarify my own judgment in any particular case, I have adopted a method of classifying each case according to its surgical possibilities.

Class A consists of those patients in whom a total perineal prostatectomy, as advocated by Young, can be performed with hope of cure. In such a case the growth must be confined to the prostate and vesicles, so far as one can tell. That is, the sulcus between the gland and the pelvis must not be obliterated, the growth must not extend far into the vesicles, and the trigone when viewed by cystoscope must show no sign of invasion. Geraghty found this condition present

in 21 cases out of 400. These 21 cases had total prostatectomies, and in none of these did the growth recur locally. In my series of 30 cases, I placed seven in Class A. In five of these I did a total prostatectomy, with the following results:

Sept. 5, 1919. Patient G. Age 60. Total prostatectomy. Radium seed left in seminal vesicle. Good control at first. Later developed recto-urethral fistula. Was relieved of obstruction and able to work. December, 1920, x-ray showed metastasis in ilium. No sign of local recurrence.

Nov. 15, 1919. Patient H. Age 70. Total prostatectomy. Fair control. Had much gastric trouble and died six months later with recurrence in liver.

Feb. 17, 1922. Patient S. Age 67. Decompensated heart. Total prostatectomy with implantation of radium into ledge of indurated tissue beneath trigone. Excellent result. Almost perfect control. Dec. 6, 1922, very little thickening about bladder neck. Considers himself well.

May 19, 1922. Patient MacD. Age 55. Total prostatectomy. Fair control. Seen by me in October, 1922. Control generally good. Slight leakage at times. No residuum. Urine clear. Takes No. 26 sound easily. By rectum there is a ledge across base of bladder, which is firm and may be malignant or may be scar-tissue.

Oct. 5, 1922. Patient R. Age 66. Total prostatectomy. In less than three weeks wound healed, catheter out, patient has very fair control.

Beyond a doubt, in some of these patients the growth had extended too far to justify one in expecting a cure. I have been impressed by the fact that the operation was as well borne, and the local results were fully as good as in the cases operated less radically.

Class B. This class consists of patients in whom the growth is too extensive for total prostatectomy, but has not yet involved the bladder. They are cases with obstruction, without demonstrable metastasis, whose condition the surgeon feels warrants a removal of the obstruction. They are subjected to a partial perineal prostatectomy, the bladder outlet being freed as much as possible by removal of the obstruction piecemeal. Into the shell of malignant tissue which is left are inserted four to six radium needles, the total dosage of radiation amounting to at least 2000 mc. hours. One may expect, by this operation, to provide a free bladder outlet for as long as the patient lives. The chances are that he will develop metastases within several years. Eleven cases were deemed suitable for operation. Naturally they were not so good risks as those in Class A. The results were distinctly worse. Of these eleven, three died in the hospital, one, a man of 76, two months after operation, of hypostatic pneumonia; another, six

days after operation, of embolus; a third, a month after operation, with edema of legs, probably due to metastases. Another developed paraplegia from spinal metastasis while in hospital, and died three months later. Seven left the hospital in fair or good condition.

Patient H. Operated July, 1921; when seen, 15 months later, was in excellent condition. There was no induration about bladder base, he had gained 20 or 30 pounds, and had no residuum.

Patient C. Operated July, 1919, lived two years, then died of metastases. He emptied his bladder perfectly, and had no evidence of local recurrence.

Patient B. Operated March, 1921; was well a year later.

Late results on the other two cases are not at hand. Shortly after leaving the hospital, one of them was reported as being incontinent when he stood up; the other had a recto-urethral fistula and was wearing an indwelling catheter.

Class C consists of cases with obstruction, who cannot catheterize themselves or wear an indwelling catheter, yet who have too extensive a growth or who are in too poor condition for perineal prostatectomy. In these cases I open the bladder under spinal anesthesia, insert radium into the prostate and into the nodules upon the trigone, and institute permanent suprapubic drainage. I always hope that the radium may so destroy the growth that urination may become possible after some months, but so far these hopes have not materialized. I have operated upon only two cases of this type. One is still in the hospital. The other has not been heard from since leaving the hospital last September (1922).

This is most decidedly a palliative procedure, yet if the suprapubic drainage is properly managed, the patient will be very comfortable, so far as his bladder is concerned, for such time as remains to him.

Class D consists of all the rest—nine in my series—who, by metastases or local extension, show the futility of operative interference. If they have no obstruction, they are fortunate. If obstruction exists, they may be able to wear an indwelling catheter, or may depend upon intermittent catheterization. The spinal pain, so persistent and often so acute, will sometimes be alleviated by deep x-ray treatment. Nearly always opiates are necessary.

Until a few years ago, prostatic cancer was a hopeless disease. Very few men would operate upon it, or if they did, it was simply to enucleate suprapubically the adenomatous part of the gland, leaving the malignant portion behind. We owe much to Hugh Young for his development of the perineal approach. With the advent of radium, interest centered upon this problem, and we now have developed rational measures for the relief of the man who has cancer of the

prostate. The success of these measures depends directly upon early diagnosis.

### CONVALESCENCE: III. A CHRONOLOGICAL REVIEW, FROM 1877 TO 1917.

BY JOHN BRYANT, M.D., BOSTON.

#### 1878-1900.

THE period from 1878 to 1900 was marked by an absence of literature upon the subject of convalescence almost as complete as exists today. Today, for example, if one looks in the index of a recent volume of the *Journal of the American Medical Association*, such as that for June, 1922, one finds "Contract" followed by the title "Convulsions," the title "Convalescence" being wholly absent from the index of this important medical journal.

However, in spite of the dearth of literature between 1877 and 1900 there continued a certain amount of very practical interest in the subject, as evidenced by the opening of numerous convalescent homes in Europe. In this country, the same period saw the opening of several small convalescent homes of approximately 30 beds capacity. St. Luke's Convalescent Home and the Convalescent Home of the Massachusetts General Hospital are two local reminders that Boston was at that time taking an active interest in providing suitable accommodations for the convalescent patient.

#### 1900-1917.

Lewis,<sup>8</sup> in 1903, remarked upon a certain similarity between convalescence and chronic illness, the similarity being based upon a loss of tone throughout the body. He believed that the change in habits of the sick person, from relative activity to a more or less passive condition, was in part responsible, as also the limitation of environment. He recommended a change of air, a well-planned routine, regularity of habits, and careful exercise. As a nerve tonic he proposed valerianate of zinc.

In the following year Rowell<sup>10</sup> deplored the fact that convalescent patients were usually neglected, a neglect which unfortunately continues today to be the rule rather than the exception.

One of the first careful studies of the general subject of convalescence, in the period since 1900, is that by Frankel,<sup>9</sup> who wrote in 1905 as manager of the Hebrew Charities of New York City. He pointed out that the average stay of patients in an acute hospital was 18 to 20 days, a period which is today accepted as the average in large hospitals the world over. This period is in striking contrast to the average stay of non-tuberculous patients in the German sanatoria, a period which he found to be about 52 days for the men and 56 days for the women.

Frankel concluded that the New York hos-

pital system was inadequate and that it was developing an increasingly large class of "half-cured" persons who eventually drifted to relief agencies as permanent dependents. He pointed out that the death rate from the common diseases was on the increase rather than the decrease, and he stated his conviction that it was necessary to care for the convalescent patients in special hospitals, in order to avoid the subsequent pneumonias and nervous exhaustions which occur so frequently in this class of half-cured patients. It was Frankel's opinion that hospitals for convalescents should approximate to the least extent possible the regulation hospital, and to the greatest extent the normal home. He approved of the cottage plan of building, and spoke of the definite place of family care in any complete scheme of convalescent work. The advantage of a change of environment from the home was considered important, and he believed it advisable to have a definite set policy upon the subject of convalescence, even from the purely economic point of view. It seemed to Frankel a question of fundamental preventive medicine in which convalescent homes were the alternatives for homes for incurables—not to mention the fact that such preventive care acted as a definite aid in the direction of eugenics.

In 1905, Oddo<sup>11</sup> remarked upon the evolution of a leucocytic formula for convalescents. In the same year<sup>12</sup> he drew attention to a cardio-vascular hyposthenic sign of incomplete convalescence, which he called the hypotension of effort, due as he said to both cardiac and vasomotor insufficiency. He believed that after exercise one should measure not only the force but the stability of this reaction.

In the same year, 1905, Taylor<sup>14</sup> wrote upon the necessity of special exercise for the motor education or re-education so necessary during convalescence, in language which has not since been improved upon. He believed that: "The motor machinery tends to lose range, scope, elasticity, and nicety of adjustment. Exercise should include accuracy, symmetry, deliberation, normality of direction, moderate speed, and maximum force. Mental training is so inextricably interwoven with motor training that it is practically conceded that motor education is the essence or basis of the whole. The best psychic results come through coöperation of bodily and mental education. This work cannot be delegated by a physician. The reason why so many invalids remain such, or so many convalescents become invalids, is because the medical adviser fails to complete his work, to appreciate the full significance of his duties, to apply his abilities to the perfecting of his measures—in short to fill in the niche he had modeled for himself."

Tyson,<sup>16</sup> writing in England in 1906 upon the convalescent stage of disease, was well aware that patients were usually sent back to work

too soon. Two years later, Worster<sup>17</sup> emphasized anew the desirability of employing physiotherapy during convalescence.

Armstrong,<sup>1</sup> following the lead of Frankel, again emphasized the extreme importance of considering the convalescent stage of disease from the point of view of hospital management, quoting Plato to the effect that the poor man has no time to be sick. He estimated that of the 31,334 patients discharged from the Bellevue in 1906, of whom only 13,825 were reported improved, probably 44 per cent. were not fit to work and doubtless 30 per cent. were in need of actual further treatment. Armstrong pointed out that England, France, Germany, and Switzerland had all recognized the necessity of sending city hospital patients to the country for convalescence. Thus at this time there were known to be 278 recognized convalescent homes in England, of which 13 were connected with the London hospitals. He reported that whereas 20 per cent. of the patients from English institutions were sent to convalescent homes, but 10 per cent. of the patients from the Massachusetts General Hospital were sent to the Waverley Convalescent Home in spite of the fact that this home was not used to capacity<sup>18</sup>; he added that at least in England the cost per bed for maintaining such a convalescent home was but 50 per cent. of the cost of maintenance in the large city hospitals. Armstrong was convinced that convalescent treatment should, even for purely economic reasons, be absolutely separated from acute hospital treatment; also he believed it important to promote a special society which should further the convalescent hospital idea.

Convalescent care in this country received what has proved to be its greatest stimulus through the generosity of an elderly merchant of New York, who, dying at the advanced age of 97 years, left his entire fortune of several millions, for the founding and maintenance of an institution for the free care of the convalescent patients of New York, the institution to be known as the Winifred Masterson Burke Relief Foundation.

This institution, upon which actual work was begun in 1912, was opened in April, 1915, with a capacity of approximately 300 beds. The hospital itself is connected with the hospitals of the city through a receiving department in the city, transportation to and from the city being carried on most satisfactorily over the roads to White Plains by means of a large and specially constructed motor omnibus, which has a capacity of thirty or more patients.

In preparation for the opening of the Burke Foundation, a careful study of the convalescent situation was made by Brown,<sup>3</sup> who in 1911 stressed the importance of physiotherapy and occupational therapy. Reviewing the New York

<sup>18</sup>This Home was closed in 1914, and has not since been utilized.

hospital situation, he estimated that 60 per cent. of the surgical and 40 per cent. of the medical cases in acute hospitals required organized convalescent care. Of this number, he estimated that 20 to 30 per cent. would be eligible for a convalescent home. Of this 20 to 30 per cent., approximately 35 per cent. would be males and 65 per cent. females. He believed that three or four times as many females as males would accept care at an organized convalescent home, due to the fact that men feel more keenly than women the responsibility for their homes.

Brown attributed the rising death rate from common diseases to the increasingly large numbers of dispensary patients who were being continued in a state of semi-neglect rather than permanent cure. He also attributed to inadequate hospital care the rapidly increasing frequency of chronic exhaustion among the hospital and civil population, explaining it by a lessening resistance to disease. He concluded that about 4 per cent. of the male and 10 per cent. of the female out-patient cases would accept convalescent care, an average of about 8 per cent. of the total hospital population. Brown further pointed out that 20 to 60 per cent. of the colored hospital population required convalescent care, and that of these 60 per cent. would be women. The average duration of stay in a convalescent home he estimated at three to four weeks, with approximately two to three months for the heart cases. The heart cases he assumed would total nearly 30 per cent. of all convalescent cases, with the neurasthenics averaging perhaps 5 per cent. of the total group. He also pointed out the essential nature of social service in follow-up work, and indicated the value of having a city office for more intimate contact with the home situation of the patients. In connection with the importance of occupational therapy, Brown noted the value of useful work or even lessons and instruction, together with house work for the women. He then quoted the following from Florence Nightingale, concerning the value of occupation: "A little needle work, a little writing, a little cleaning, would be the greatest relief the sick could have if they could do it. Bear in mind that you can have all these varieties of employment, bear also in mind to obtain for them all the varieties they can enjoy."

Taylor,<sup>12</sup> in 1911, remarked upon the value of a movable camp for convalescents, and McConnell<sup>13</sup> emphasized the necessity for follow-up and after-care of patients leaving the acute hospitals.

Two years later, Pool<sup>14</sup> recommended early systematic exercise. Freeman<sup>15</sup> noted the importance of giving adequate advice to patients leaving hospitals after surgical operations, concerning such points as supporters, dressings, diet, the care of the bowels, social duties, the number of visitors, hours for rest and sleep, the

use of stairs, and other exercise; not forgetting information concerning the proper time for returning to work.

In the same year, Barringer<sup>2</sup> wrote upon convalescence, referring under general headings to the care of the diet, the value of climate, exercise and the necessity for a cheerful mental environment. Under special headings were mentioned the care of the nervous system, the circulatory system, and the digestive apparatus, and in addition special instructions concerning the post-operative cases.

Galbraith,<sup>7</sup> also in 1913, considered convalescence and the progress of patients from chronic invalidism to efficiency, stressing the etiologic importance of over-work, poor food, stimulants, alcohol, chronic debility, lack of exercise, wrong clothing, nervous prostration, and last but not least, loss of hope. Galbraith recommended rest, good air, plenty of water, simple food, exercise and massage, pointing out that part of the exercise must afford amusement, diversion, and recreation.

Now and then in the literature of any subject, there appears a paper which within reasonable length compresses so much of importance that it cannot be presented in abstract without undue loss to the seeker for knowledge. In this category must be included two papers from the Burke Foundation, and one by Bridgman.

The first of this important group of three papers is also the first serious publication from the Burke Foundation. It was given in 1916 by Dr. Frederic Brush<sup>4</sup> (medical director of the Burke Foundation), at a symposium on Hospital Efficiency, under the title of "The Convalescent Field—Its New and Changing Border Lines." It originally appeared in the *Modern Hospital* for June, 1916, and is presented herewith in full for the thoughtful consideration of all students of convalescence.

#### THE CONVALESCENT FIELD—ITS NEW AND CHANGING BORDER LINES.

The hospital efficiencies most needing development are not now internal, but are in the lines of the hospital extensions—in work for health outside of the main buildings. Better dispensary service (with some branch stations), health center work from hospitals, adequate social service, long-term "follow," prevention, convalescent supervision—these indicate the main attracting possibilities of the newer hospital efficiencies. The American hospital is yet greatly underrated as a health instrument. It survives many stresses, grows steadily, and gets funds beyond almost any other organization. The present need is not for so many new, small, and precarious associations, but longer, stronger extension arms to the hospitals.

Hospital efficiency thus covers convalescence, which is taken here to include health increase, health holding, and prevention of health deterioration. Raising the sick, handicapped or sub-normal, to their fullest working efficiency, and keeping them

there, differs widely, as a plan, from the old admitting, treating, and discharging of patients.

What are the *fields of convalescence* as at present demonstrated or foreseen? The question is coming rapidly into importance. Millions of dollars in this vicinity alone are awaiting, or already planning, expenditure in convalescent lines. We need not here review the long history (mainly in England) of the convalescent home, for it is evident that this country will develop its own types. Roughly—and with much gradation, of course—we may outline our convalescent care as follows:

1. The older type of convalescent home; usually small, taking part pay for services when possible, equipped to give rest and good food, and necessarily admitting but few yearly and from a very restricted class. The work of these homes will probably not increase much. Some are being discontinued with the passing of a supporting personality, or group; others are falling behind in efficiency (poor locations, etc.). Their product will be fairly good, but small, comparatively.

2. The larger convalescent institution; accommodating from 40 to 300 or more, and affording, in different degrees, nursing and some classification of patients, medical attendance, surgical dressings, recreations, physical therapy, occupational training, etc. These homes may be governmental, or private corporate, or branches of hospitals or organizations. This promises to become quite distinctively an American type of health plant; the formative stage only is entered.

3. The country branch hospital; for years proposed and discussed; significant that it has scarcely been attempted. The hesitancy of managers to try it has been wholesome, probably. Ideas have changed, and there begin to appear more definite and feasible plans for what will be more the suburban branch of the large city hospital, located upon ample grounds (for sure growth, even to becoming the main institution later), within four to twelve miles of the parent (reachable by staffs and visitors), and giving cheaper and better accommodation to a considerable percentage of early transferred patients—as well as standard hospital, dispensary, and social services to the contiguous community. Some convalescents would also be accommodated. Costs should be one-fourth or more lower than in the main institution. Centralized management of extensive health plants is not the least of the advantages instead of many small struggling new institutions. Grace Hospital, in Detroit, is valuably leading in this direction.

4. The pay convalescent home; there is a very moderate but persistent demand for this. A serious gap exists with us between the free home and the often unsatisfactory and expensive private sanatorium. Such a place needs to be small, and, above all, partly endowed, exceptionally equipped and managed—its rates from \$7.00 to \$20.00 per week. Pay convalescence as attempted thus far in small houses, usually by nurses, has mainly failed, financially and otherwise.

5. Home convalescence; to be more definitely organized as a branch of health work, probably in the social service departments, with overlapping avoided.

#### OUTLINE PLAN.

1. Patients to be chosen, generally before ready to leave hospital, and certain ones selected for this

kind of convalescent care (as certain others would be for the convalescent homes).

2. Patient's home to be arranged in advance, and to be further organized on arrival of patient as to room, bed, air and sun, noises, bathing, rest periods, surgical dressings, visitors, housework, feeding of patient and family, family physician's co-operation, children, and patient's therapeutic and then productive occupation as strength returns. The Boston Dispensary is pioneering in this.

3. Experiment tried best with hospital having well-developed social service, to co-operate rightly in selections, and with one to three special home convalescent workers, in a convenient limited district.

4. Cost accounting from the start; hence enough field to give a typical experiment.

5. Card records and long-term "follow."

*Advantages of home convalescence properly directed:*

a. Low comparative costs, probably one-third that of institutional convalescence.

b. Continuity of service to the patient. (The added break of going to country convalescence deters large numbers. "Going home" is restorative in many cases.)

c. Home held together.

d. Home educated—bettered.

e. It would cover the great majority who will not, for various reasons, go to convalescent institutions (probably 60 to 80 per cent. of those needing convalescent care).

6. Convalescence within the hospital; some things can be added here in most hospitals. More use, with classification, of balconies and grounds, table feeding, occupation, libraries—these indicate the ways, especially for the many institutions blessed with acreage; e.g., an inexpensive convalescent camp on the corner of the ample grounds of a large hospital is being considered.

So much for the convalescent plants and their organization. But who are the convalescents—rightly to be sent to these various and increasing homes? Five years ago the list might have read: "Persons recovering from operations or illness, with little or no surgical dressings, and able fairly to care for selves; and certain deserving persons temporarily distressed and out of place in life."

But the more recent extensions and plans in the convalescent field cover:

1. Surgical dressing cases—and these quite broadly. Wounds heal more rapidly in the convalescent home for various obvious reasons. Sun treatment may be given; physical therapy instituted and continued; the surgeon's co-operation held by phone, letter, or visit; exercises and occupations started which toughen and train and cheer the patient for sooner and surer re-entrance on productive life. Motor transportation is successful in many classes of fairly recent operation. At the Burke Foundation we are doing 800 surgical dressings per month, and we welcome nephrectomy, empyema, mastoid, many recent fractures, wounds with drains, etc., etc. Results are most satisfactory.

2. Heart disease. This large problem can be touched here in outline only, but convalescent homes must learn how to let down the bars, measurably, on this most prevalent illness. They cannot well do this (so negative and even disastrous have been results in the past) until the machinery for the

proper selection of patients is set up and running; nor until they are themselves equipped with requisite medical and nursing attendance, occupation therapy, etc. Special institutions and means may well be devised for these sadly handicapped (as the trade school for cardiacs of New York), but heart disease has so many grades and is so prevalent, in all the zones of life that surely considerable numbers should be convalesced regularly in the larger standard homes.

Three examples of feasibility:

a. Those with fair compensations and reserve should not (as now) be refused because labelled "heart disease," "a murmur," etc., when needing (as so often) *convalescence for other reasons*.

b. Those who just "tire on the job" frequently, with fairly holding compensations, should be given periodic upbuildings, and in this way kept in productive life.

c. Youths should be given first place in cardiac convalescence, and many more beds opened to them. *Youth is to be the main point of attack on heart disease*. Recent experiments of the Burke Foundation and others show, apparently, that country convalescence of cardiac youths is surprisingly successful, and without very special equipment or precautions.

These three phases have here been entered on. Cardiacs recovering from recent severe attacks should not be sent early to standard convalescent homes. They relapse too frequently. Prolonged hospital or house care and "follow," with ambulatory attachment to "cardiac classes," and occupational supervision, is their inadequate best chance now presenting.

3. Men.—We have had almost no convalescent places for them. The need is probably one-half that of women, and is on the average a *surer need*. For example, no convalescence equals in certainty and gratification that of, say, the post-typoid sailor or laborer, without friends or room or fit clothes, weak and neuralgic, but courageous and sure of happy productivity if he "gets on his pins"—and pretty sure of bad city deteriorations without this convalescent aid.

4. Rheumatism. The situation is somewhat like that of heart disease. Relapses are discouragingly frequent, apparently from just being sent out to convalesce—the mere change. Who cares to feel the responsibility for a single recurrence of rheumatic fever, with its probable end-results? Longer in bed, longer about the hospital and the home, and then country convalescence only if specially needed for general upbuilding, or complications, seems the best course at present. Special institutions have been proposed for rheumatism and the arthritides, but the indications are not yet clear. Much of this class will naturally be cared for along with heart disease, and heart disease is going to be covered in more comprehensive ways in the near future.

5. Tuberculosis. Bone, kidney, and like forms should be quite freely received, and given longer stay than average. And, despite the probable necessity of stating that pulmonary tuberculosis may not be admitted, it will be frequently present in the convalescent institution, if the place is giving a high kind of service. Signal benefits may be rendered there in treating and observing, and insisting on full diagnosis, in that large group labelled, "threatened with T. B.," etc. (and who nearly always have it). This is adult preventorium work of much im-

portance. Then, there is the small but definite class just returning arrested from the sanatorium for tuberculosis, and needing (most often for social reasons) a few weeks of continuation care while right environment is being arranged. Even the quiescent, admittedly lung-affected may occasionally be accepted, with precautions; for these so often in other ways, and for brief period only, need precisely what the country home can give.

6. Mental convalescence. There are possibilities, rather vague as yet, of bringing into the convalescent field the early or oft-called "borderline," or "observation" mental conditions, and some of the nervous diseases and habits. The gap in our provision for the treatment of the poor and middle people in these troubles is painfully apparent. It is, however, a most difficult problem.

A crude, but at least debatable, starting program may be outlined as follows:

a. Convalescence in the standard home? No; not only fails, but reduces the good of the place to others. Experience is fairly adequate for this judgment.

b. A very large general convalescent plant with much land might try a separate cottage, with special service, and give partial use of the general occupation, amusements, library, etc. This would be fairly economical, but complicating and doubtful of success.

c. The existing institutions for mental diseases, both State and private, should be outfitted to greatly extend convalescent effort. They have broad lands, separation and camp possibilities, central service and occupation plants, and some "follow" becoming available. The "asylum" stigma is lessening, and will be fairly outworn in time, especially by just this work.

d. The special mental convalescent institution is in many minds. It would take certain patients from asylums and others directly, and should be complete in occupation especially, have moderate pay and free beds, and be really a first-class sanitarium, but endowed for one-half support at least. It might best be near the city, in order to link up closely with normal life through an occupation-employment-sales center, serving several organizations perhaps. The establishment of this latter should precede the convalescent institution. *Success in mental convalescence is going to hinge on occupation*; and occupation therapy is measurably failing everywhere because of *lack of sales outlets for its products*. Costs would be \$2.00 to \$3.00 per day per capita; length of stay, three to twelve months; cost per person \$300 to \$1000; failures many—probably a majority. This gives us pause, and should make us constantly compare the institutional plan with mental welfare work, in the homes and in occupational centers, and the use of existing occupations.

7. Adolescence. This vital age of 12 to 16 "falls between" as to institutional care, and for well-known reasons. Thirty beds for boys and a like number for girls have been opened here this year, and results are gratifying. Separation care is desirable for this age.

8. The colored people. Over 100,000 in this community and increasing by thousands each year, with practically not a convalescent bed for them—expensive health policy, of course. We all lose or gain together. A separate small home is the answer. The Burke Foundation is now conducting such a

branch, and it is proving to fill a definite need. They respond with peculiar happiness and success to country convalescence.

9. Preventive convalescence (using the latter term broadly). Is only in beginnings. Some fear the building of too many convalescent institutions. With this preventive health upbuilding well under way, there would be needed five beds where now is one. We have tested and estimated that, at lowest, 10,000 adults per year should and would go out for short periods of health building from New York dispensaries alone; a little over 500 may go this year. The dispensaries and the various social services must be the main dependencies in finding and sending these patients. The medical-social machinery to accomplish this does not yet exist, or is inactive. This is really the big end of the convalescent job; and scarcely anybody is on it. But good beginnings are being made. Employers, department stores, friends, physicians, various societies, schools, health boards, etc., are co-operating a little. The dispensaries are as yet disappointing in this, and apparently must await special salaried social workers in them.

There are lesser side-lines of convalescence, as the fresh-air camp, mothers with babies, orthopedics, etc., which we may not here discuss. We have looked over the main convalescent field, with the more recently entered or proposed extensions—surgical dressings, cardiacs, rheumatism, tuberculosis, borderline mental, men adolescents, colored, preventive. These represent wide expansions. There is danger of overdoing convalescent provision in some directions. The borderlines will best be determined, somewhat slowly, by experience.

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## FRACTURE TABLE AND FLUOROSCOPY IN DIFFICULT FRACTURES.

BY HOWARD M. CLUTE, M.D., BOSTON.

It is generally admitted that whenever possible all fractures should be reduced by closed methods, and that the operative reduction of any fracture should be adopted only where other methods fail. It is the purpose of this article to call attention to the value of mechanical traction controlled by the fluoroscope in the

closed reduction of fractures ordinarily difficult to handle.

In general, the chief factor rendering difficult the reduction of a fractured femur is muscle spasm. This may hold the fragments in a position which completely prohibits reduction, and may be so powerful as to render manual traction inadequate. In addition there may be bony irregularities or spurs which hold the fracture locked in its abnormal position. The thick muscles of the thigh prevent any valuable palpation of the true positions of the bones by the surgeon's hands and render the final results of the manipulation quite uncertain until x-ray plates are taken. Any measures available that will overcome the spasm of the muscles and permit the position of the fragments to be seen at the same time, should aid materially in the proper reduction of the fracture. Mechanical traction under direct fluoroscopic vision has been of great value in our clinic in two recent difficult cases and we believe it offers the only measure short of open operation that may solve some of these exceptionally difficult reductions.

We have used for these cases a light, portable fracture table. This we are able to place on the top of any ordinary x-ray table and arrange so that the fluoroscopic screen will be directly over the broken limb. With the table we are able to gain any degree of traction by a screw windlass on the foot pieces. The important advantage gained by watching the broken fragments gradually come down into line can be readily appreciated.

The patient is anesthetized and placed on the fracture table. Traction necessary to make the injured limb as long as the other is now instituted by turning up the windlass. The result is observed by fluoroscopy. If more traction is needed to make the fragments of the fracture come into line and cease to override, it is carefully applied. When the fragments are well extended it should be possible to manipulate them so as to bring them end to end. At this time the mechanical traction should be slowly loosened and an attempt made to lock the ends of the bones. We do not believe that it is possible to retain bone fragments in a condition of continued traction by plaster of paris for any length of time. To be retained in proper position the bone ends must be locked. Oblique fractures of large bones may not be permanently held by this method because of their tendency to slip when traction is removed. After the fracture is placed in the best position obtainable, a plaster is applied and x-ray plates are taken to form a permanent record of the case.

The accompanying x-ray prints demonstrate the results obtained in two recent cases.



FIG. 1. Case 1.—Lateral view before reduction showing posterior displacement of distal fragment. Bony projections at point of fracture and spasm of muscles prevented reduction until mechanical traction under x-ray vision was used.

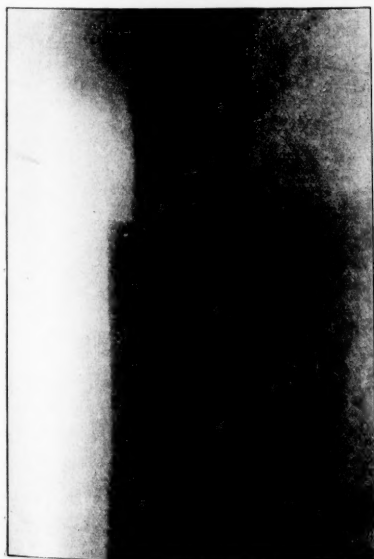


FIG. 2. Case 1.—Antero-posterior view before reduction.

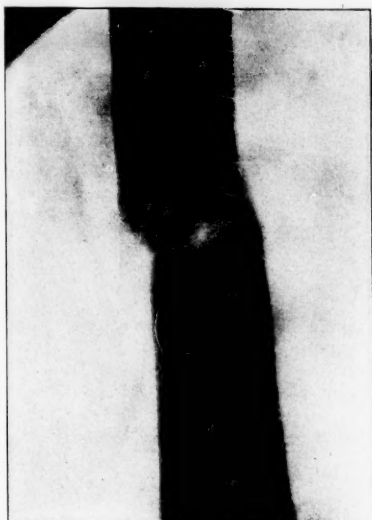


FIG. 3. Case 1.—Antero-posterior view after reduction. Sufficient traction has been applied to permit the fragments to lie end to end. They were sufficiently engaged to retain their position after traction was removed.

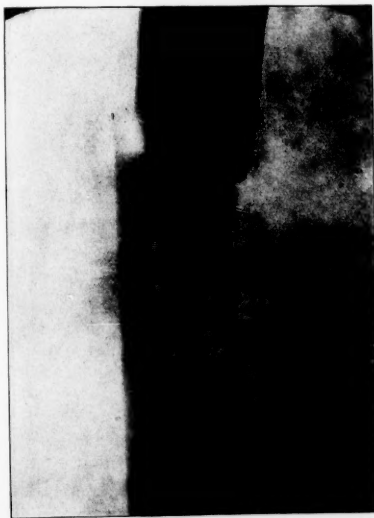


FIG. 4. Case 1.—Lateral view after reduction by traction and manipulation under the fluoroscope.



FIG. 5. Case 2.—Lateral view before reduction. Note posterior displacement of lower fragment with over-riding of proximal fragment.

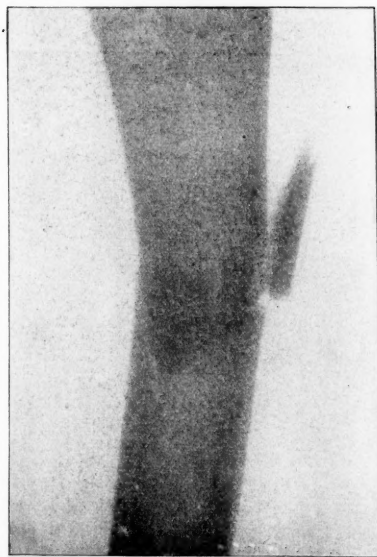


FIG. 6. Case 2.—Antero-posterior view before reduction by mechanical traction under the fluoroscope.



FIG. 7. Case 2.—Antero-posterior view after reduction. Note loose fragment which had undoubtedly interfered with earlier attempts at reduction. Note separation of fragments caused by the mechanical traction.

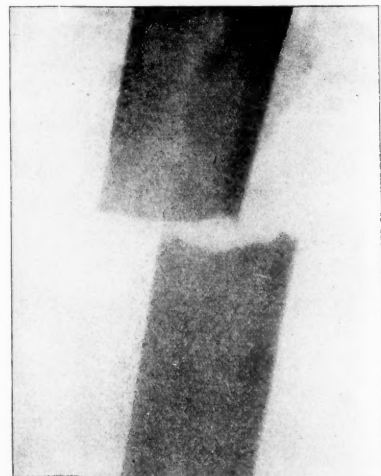


FIG. 8. Case 2.—Lateral view after reduction. Note actual separation of fragments to allow adjustment by mechanical traction.

## THE CHOLESTEROL CONTENT OF BILE IN HEALTH AND DISEASE.

### 1. METHODS FOR COLLECTION AND ESTIMATION IN THE DUODENAL CONTENTS OF MAN.

BY C. W. McCLURE, M.D., BOSTON, AND E. MORTIMER, S.B., BOSTON.

[From the Evans Memorial, Massachusetts Homeopathic Hospital.]

A study of the concentration of cholesterol in the duodenal contents of man under varying conditions of health and disease offers certain diagnostic possibilities. Recognizing this, the authors have undertaken an investigation to ascertain the normal concentration of cholesterol, which originates from the bile, in the duodenal contents, and what changes, if any, are induced by pathologic conditions.

The present report gives a brief description of the methods devised for collecting representative samples of duodenal contents and for evaluating their cholesterol concentration. Publication is made at this time in the hope that others may be interested in extending the scope of the study.

The present investigation has been made possible by the use of the duodenal tube, the introduction of which by Einhorn has opened up a new field for physiological and pathological experimentation. Presumably because of certain technical difficulties involved, however, until recently investigations of the duodenal contents in man have aroused but little interest among clinicians. Even with the more recent work, the attention attracted has been due rather to the possibilities it suggested than to the immediate results obtained. One reason for this is, perhaps, because the methods usually employed in the investigations have not been so standardized as to prevent the results from being vitiated by a large personal equation.\* Among the first to recognize this were Jones and McClure, and co-workers. Jones<sup>1</sup> has applied a spectroscopic method to the study of duodenal contents which permits an objective estimation of the relative amounts of certain bile pigments present in them; and by this means has obtained results aiding in the diagnosis of biliary tract disease. McClure and co-workers<sup>2</sup> devised methods for estimating the enzymic concentration of duodenal contents and, with the help of Jones,<sup>3</sup> have done much to establish the value of such estimations in clinical medicine.

The present communication adds another objective method to the study of the biliary fraction of duodenal contents, and deals with a method for the colorimetric quantitation of cholesterol.

\*For a conservative report on results obtained by using certain recent methods in the study of duodenal contents see the article of Dr. Franklin W. White, BOSTON MEDICAL AND SURGICAL JOURNAL, vol. 186, page 206, 1922.

A definite chemical entity, although the exact chemical constitution is as yet unproved, cholesterol in simple or combined form is a most important constituent of all body tissues and fluids. Although the central nervous system contains the largest amount, it is also a significant component of bile; in which source it was originally discovered and isolated by Chevreul. Its predominance in gallstones is perhaps the most generally recognized of its pathologic manifestations, although its influence in certain haemolytic systems and its marked toxicity on the heart have received much attention in the last few years.

For the purpose of the present investigation, it was necessary to study two procedures: first, a procedure for obtaining duodenal contents in which the cholesterol was present in suitable concentration; and second, a method for the quantitative determination of cholesterol in duodenal contents, which would be practical for clinical work.

1. *Procedure for obtaining duodenal contents:* Duodenal contents suitable for cholesterol determinations are obtained as follows: Introduce the tip of the duodenal tube in the proximal portion of the second part of the duodenum. Then require the subject to recline on the right side, and through the tube instill 50 c.c. of 33 per cent. magnesium sulphate (Epsom salts) solution into the duodenum. Close the proximal end of the tube for five minutes, and then allow the duodenal contents to siphon off. As soon as definitely yellow duodenal contents are obtained begin the collection and continue it for one-half hour (30 minutes).

2. *Method for quantitating cholesterol:* *Reagents.* Ninety-five per cent ethyl alcohol and anaesthetic ether of the U. S. P. grade are used. In addition the following reagents are to be of the highest obtainable purity: cholesterol, chloroform, sulphuric acid, metallic sodium, acetic anhydride, anhydrous sodium sulphate.

a. Alcohol-ether mixture. This is a mixture of 75 volumes of alcohol and 25 volumes of ether.

b. Alcoholic solution of sodium. This is prepared by removing the surface coating from the cubes of metallic sodium and cutting them in small pieces. Add the small pieces, one by one, to 100 c.c. of ethyl alcohol (95%) in a beaker until no more will dissolve. Preserve this saturated alcohol solution in a brown glass stoppered bottle.

c. Cholesterol solutions.<sup>4</sup> Dissolve 0.2 gm. cholesterol in chloroform in a 200 c.c. volumetric flask and then fill up to the mark with chloroform. From this stock solution prepare three standard solutions by diluting 10, 20 and 30 c.c. of the stock solution to 100 c.c. with chloroform in 100 c.c. volumetric flasks. These standard solutions contain 0.5, 1.0 and 1.5 mgm. cholesterol, in 5 c.c.

**Apparatus.** Two sizes of glass stoppered graduated mixing cylinders of about 130 c.c. and 10 c.c. capacity. The usual mixing cylinder graduated to 100 c.c. will ordinarily be found large enough. Twenty and five c.c. volumetric pipettes. Folin 15 c.c. blood pipette, 5 c.c. graduated pipettes in tenths, one c.c. graduated pipette in hundredths. Lipped, Pyrex glass beakers of 100 c.c. capacity. Glass funnels of 5 cm. diameter with pleated filter paper of ordinary good grade to fit. Duboseq colorimeter with 5 cm. cups. The colorimeter cups had best be set in a thick paste of the yellow oxide of mercury (mercurous oxide) made with glycerin and allowed to harden for twenty-four hours before using.\*

**Method.** Fill a 100 c.c. graduated mixing cylinder to the 85 c.c. mark with the alcohol-ether mixture, add chloroform to the 100 c.c. mark, mix and then pipette 20 c.c. of duodenal contents into this, stopper and shake vigorously for two (2) minutes. Next add anhydrous sodium sulphate<sup>1</sup> until it fills the lower 25 c.c. (about 25 gms.) of the cylinder and again shake vigorously for one (1) minute. After shaking allow the cylinder to stand until the upper portion of the fluid becomes clear, or nearly clear, which occupies a period of not more than a few minutes. Pipette 15 c.c. of the clear supernatant fluid into a 100 c.c. beaker, add 2.5 c.c. of the alcoholic sodium solution and evaporate to dryness on an electric hot-plate. The heat should not be great enough to cause sputtering. Bringing the solid residue to dryness requires care to avoid popping of fine fragments out of the beaker. For this reason it is advisable to hold the beaker a few millimeters above the hot-plate while drying the solid residue. By touching the bottom of the beaker momentarily, and at frequent intervals, to the hot-plate, dryness of the residue can be obtained without loss of material. After the residue has reached apparent dryness all popping ceases, and the beaker is allowed to remain on the hot-plate for 120 seconds longer. In our experimental work an electric hot-plate operating with 110 volt D. C. and of the type ordinarily used in chemical laboratories was employed. With this particular hot-plate three degrees of heat are possible—low, medium, and high. The evaporating and initial drying were carried out on the "low" heat, while the final heating of the apparently dry residue was carried out on the "medium" heat for 120 seconds. After this final heating the beaker is removed from the hot-plate and allowed to cool a few minutes. The cholesterol is then extracted, after triturating the dried residue with the flattened end of a glass rod, by pouring 15 c.c. of chloroform along the sides of the beaker, washing off the rod with a little chloroform and evaporating the chloroform to a volume of approximately 3 c.c. Filter the chlo-

roform extract through a pleated dry paper into a 10 c.c. mixing cylinder. Repeat the process of extraction twice more, on each occasion pouring the chloroform extract through the filter paper, and finally making up to the 10 c.c. mark by pouring chloroform through the filter paper. The chloroform extract should be colorless or show but a faint tinge of yellow color. Mix the contents of the cylinder and pipette 5 c.c. into a clean dry test tube. Then add 2 c.c. of colorless acetic anhydride to the tube, mix, add 0.1 c.c. of sulphuric acid, mix and place in the dark for one-half hour (30 minutes). The three standards are prepared at the same time as the unknown, as follows: to 5 c.c. of each standard solution of cholesterol, in test tubes, add 2 c.c. of acetic anhydride, mix, add 0.1 c.c. of sulphuric acid, mix and place in the dark for one-half hour (30 minutes). For purposes of comparing the depth of color developed in the unknown, use the standard in which the color most nearly matches that of the unknown. If sufficient depth of color should not develop in the unknown to permit of accurate reading with the weakest standard solution, proceed as follows: Place 30 c.c. of the alcohol-ether-chloroform extract of duodenal contents into a 100 c.c. beaker, add 5 c.c. of the alcoholic sodium solution and evaporate to dryness. Heat for 120 seconds and carry out the remainder of the technic as already described.

**Discussion.** The clinician acquainted with the use of the Duboseq colorimeter will find the method for cholesterol determination above described readily executed. However, some experience will probably be necessary to learn to dry the residue without loss. Furthermore, unless the correct amount of heat is applied to the dry residue in the final stage, two sources of error may arise, as follows: 1. Either the chloroform extract will develop a yellow color, too definite to allow accurate comparison with the standard; or 2, overheating of the residue may cause partial destruction of the cholesterol present.

In the attempt to establish a suitable means for obtaining duodenal contents of representative cholesterol concentration, various substances, edible and otherwise, were used. The results of this study indicate that it makes but little difference in the observed concentration of the bile in duodenal contents whether a substance is ingested by mouth or poured directly into the duodenum through the tube. The advantages of the tube route are mainly the two following: 1, substances reach the duodenum without inconvenience to the subject; and 2, the uncertainty of the action of the stomach is avoided. The latter advantage becomes apparent when it is considered that in pathologic states the stomach may not eject substances into the duodenum for a period of an hour or more after their ingestion. Of the various substances

\*Personal communication from Mr. A. S. Wetmore.

instilled directly into the duodenum Epsom salts solution\* possesses the following useful characteristics: 1. It is stable and easily prepared with an approximately constant strength. 2. It produces a prompt flow of duodenal contents with a relatively considerable concentration of bile pigments and cholesterol. 3. It is more suitable for use in various pathologic conditions than any of the food substances. 4. It contains no cholesterol. For these reasons the Epsom salts solution recommended itself for the purpose of the present investigation.†

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### VALUE OF TREATMENT IN GENERAL PARESIS.

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MEDICAL opinion as to the value of treatment in cases of general paresis is widely divergent. On the one hand, there are the enthusiastic therapists who claim satisfactory results in as high as 75 per cent. of the cases treated. In contrast to this optimistic point of view there is a group of investigators who are exceedingly pessimistic and who maintain that treatment practically never does the patient good, and in many instances does harm. Because of this variation in viewpoint, it would seem worth while to review the situation and attempt to outline some of the facts relating to general paresis and its treatment.

A brief historical review may help prepare the reader for a valuation of the differing concepts. The modern ideas concerning paresis are really quite recent in their origin. The relationship between paresis and syphilis was hinted at during the latter part of the nineteenth century, but it is only a little more than a decade since the diætum of paresis as an active syphilitic disease has been established. The pathology of paresis was made definite by the work of Nissl<sup>1</sup> and Atzheimer,<sup>2</sup> which was published in 1904. With the evidence of the Wassermann reaction and spinal fluid examination the relation of

paresis to syphilis was rather generally accepted, but it was not until 1913 that spirochetes were demonstrated in the brain, by Noguchi and Moore.<sup>3</sup> In the last three or four years important advances in the parasitology of the disease have been made, due to the improved staining that has been devised by Jahnke.<sup>4</sup>

The proof of the definite relationship of the spirochete to paresis occurred very shortly after the advent of arsphenamine. Prior to the arsphenamine era most clinical experience had shown rather definitely that paresis was very little influenced by the ordinary syphilitic remedies, namely, mercury and iodide. This led to the concept of parasyphilis, *i.e.*, a disease which although possibly related etiologically to syphilis was not a true active syphilitic disease. Thus there arose a definite nihilistic attitude toward the therapy which nihilism was justified by theory and by practice. During the pre-arsphenamine period there were hardly any who believed that paresis could be modified by anti-syphilitic drugs. However, it was recognized that spontaneous remissions tantamount to brief recovery occurred, and this led to a sustained optimism in the minds of a few students of the subject and some attempts at therapy, as will be recorded below.

With the renewed enthusiasm in the treatment of syphilis aroused by the introduction of arsphenamine, attempts were again made to treat paresis. Hope for success was stimulated by the demonstration of an active spirochetosis in the parietal cortex. In 1912 Swift and Ellis<sup>5</sup> introduced the technic of subarachnoid injections of arsphenaminized serum. These various discoveries and new technical procedures aroused the utmost interest and many attempts were made for the treatment of paresis.

There are many difficulties in the way of determining the value of treatment of these cases. In the first place a differential diagnosis between cerebral syphilis and general paresis is extremely difficult. Many cases which improved under treatment were and are considered by the severe critic as not proven to be paresis. Further, natural or spontaneous remissions occur so that when only a few cases are treated it is impossible to be sure that the remissions which occurred during treatment would not have occurred had treatment not been given. Enthusiastic reports of improvement and remissions have been made almost immediately after the improvement took place, which improvement was shortly followed by a relapse. Paresis being a progressive degeneration of the brain, affords the most varied types of cases, thus the late case presents an entirely different problem and an entirely different histology from the very early case, and upon the basis of the type of case treated a difference in result may be expected. Then the variety of technic employed might be expected to give somewhat different results, and if we remember that the modern

\*As is well known, Epsom salts solution was first used for duodenal lavage by Lyon (Jour. Am. Med. Assn., 1919, lxxiii, 980).

†The authors take pleasure in expressing their appreciation of the valuable help rendered them in this work by Allan W. Rowe.

period of intensive treatment of paresis is only some ten or twelve years in duration, the wonder is not so great that opinions differ vastly.

The types of treatment advocated for paresis may be divided into two main groups, the specific and non-specific. In the United States and Canada most of the therapeutic experimentation has been concerned with specific treatment, that is with modifications and differing combinations of mercury, potassium iodide, arsphenamine and intraspinal injections of arsphenaminized serum or mercurialized serum and occasionally the intrathecal use of neosarsphenamine without serum. As modifications of the intraspinal therapy a small number of investigators have used intraventricular and intracisternal injections. These methods, likewise, have been used to a great extent in Europe, as well as in America, although the various forms of subarachnoid treatment have had more vogue in this country than abroad. Innumerable articles have been written on the effect of these varieties of treatment with, as has already been noted, the most divergent conclusions. It is not possible to review more than a few opinions in such an article as the present, but a sufficient number may be given to show the variation of opinion.

Among those who report favorable results the following may be mentioned: Dr. H. A. Cotton,<sup>6</sup> who states that "All cases of paresis can be arrested and possibly cured if treatment is given early enough." Cotton advocates the intraventricular injections as the method of choice. Webb<sup>7</sup> reports that in twenty cases treated by intraspinal therapy, he produced ten remissions. Neymann and Brush<sup>8</sup> report moderately favorable results in the treatment of general paresis and advocate intraspinal therapy, using a combination of arsphenaminized and mercurialized serum. Riggs and Hammes<sup>9</sup> are definite in their statement that treatment produces favorable results. Ogilvie<sup>10</sup> has reported most enthusiastically of the value of treatment, stating that in thirty-five cases treated by his method of reinforcing the Swift-Ellis serum by the addition of arsphenamine he produced remissions in seventy-five per cent. Amsden<sup>11</sup> states that intraspinal therapy checks the progress of the disease, but does not cure. O'Brien<sup>12</sup> states that intraspinal therapy produces more remissions than occur in the untreated cases. Wardner<sup>13</sup> has reported satisfactory results by ventricular injections, as has also Sharpe.<sup>14</sup> The same has likewise been reported by Knapp,<sup>15</sup> Campbell and Ballance,<sup>16</sup> using the same method, are less enthusiastic. Watkins<sup>17</sup> states that treatment improves the patient even when it does not cure and makes the advanced cases much better hospital cases. Lafora,<sup>18</sup> a Spanish investigator, is quite enthusiastic about the results of intraspinal therapy. Marinesco<sup>19</sup> is another strong advocate of this method. Sicard<sup>20</sup> believes that paresis can be greatly helped and his method of election is the utilization of small

doses of neosalvarsan repeated daily or oftener. McBride<sup>21</sup> favors the use of intraspinal injections of mercurialized serum after the method of Byrnes,<sup>22</sup> who also has looked upon this procedure as producing favorable results in paresis. One of the most enthusiastic therapists is Gennerich,<sup>23</sup> who had charge of the syphilitic work for the German Army. His method is the addition of neosarsphenamine directly to the spinal fluid. He believes that most cases can be greatly helped by this method. He reports that of thirty-eight cases followed, eighteen were greatly improved, eight showed a fair improvement, seven were somewhat improved and five were uninfluenced.

From this brief review it will be seen that there are a considerable number of investigators who believe that there is value in treating cases of general paresis. However, a very just criticism is that in most instances the number of cases reported upon is very small indeed, and the time period in which they were followed prior to the reported results is, in most instances, relatively short.

In contrast with these favorable reports there are almost an equal number of investigators who are unfavorably disposed toward treatment. Some hold this view on theoretical grounds, some as the result of practical application of the methods and some from observation of the work of others. Thus Mott,<sup>24</sup> who is the leading British neuropathologist and who has been long interested in the question of general paresis, feels that the paretic process is one that cannot be modified by anti-luetic treatment, which he strongly advises against. Read<sup>25</sup> states that intralumbar injections do no real good and may be harmful. Evans and Thorne<sup>26</sup> are not optimistic. Finlayson,<sup>27</sup> using the spinal drainage method was unable to see that anything of satisfactory therapeutic value was gained. Dunston and Sargent<sup>28</sup> report that the treated cases live only half as long as the untreated and therefore strongly urge against treatment. Hall,<sup>29</sup> in a review of the results reported, feels entirely pessimistic about the value of treatment.

It may thus be seen that opinion is greatly divided and the impartial critic must feel that the value of anti-syphilitic treatment for cases of paresis is a matter which is undecided. It would seem unfair to discount entirely the favorable results obtained by a very considerable group of investigators, many of whom have international reputations and who state categorically that they have obtained results which cannot be duplicated in any series of untreated cases. It would seem fair to conclude that the problem is still an experimental one, that certain cases, at least, have been helped by treatment.

The non-specific therapeutic processes are also of several varieties. Wagner von Jaurregg<sup>30</sup> was one of the early investigators along the lines of non-specific therapy in general paresis. In 1887

when tuberculin was first introduced, he began his experiments in the treatment of general paresis by injecting tuberculin for the purpose of producing febrile reactions which he assumed would increase the immunity reactions of the patient. To quote from Wagner von Jaurreg, "The fact was established that the length of life of paretics treated with tuberculin was essentially longer than that of the cases not treated and that the former showed greater numbers and more lasting remissions than the latter. The same experiment was repeated later by Pilez with the same result." He later increased the dosage of tuberculin that he used and states, "I may mention that of the cases thus treated and which I made the basis of my first communication at the International Medical Congress in Budapest, 1919, some still retain their full capacity for their occupations, today, 1921." Many modifications of the method of producing febrile reactions in patients have been introduced. The practical indication for this type of treatment arises through observation and it has been frequently reported that after infectious diseases paretics often seem to go into remissions. For the purpose of producing febrile reactions and hyperleukocytosis Donath<sup>21</sup> utilized injections of sodium nucleinate. Dollken<sup>22</sup> used various bacterial vaccines. Many series of patients were treated along these lines, and again we find a variety of opinions as to the value of such treatment. However, in the majority of instances reported, results seem somewhat encouraging. The latest modification of this type of treatment is by the artificial production of febrile producing diseases, namely malaria and relapsing fever. Wagner von Jaurreg claims the distinction of having been the first to introduce this type of therapy. At the present time the production of malaria for the treatment of general paresis is being used quite widely throughout Germany. Wagner von Jaurreg states that in 1917 he inoculated nine paretics; some advanced and some fresh cases. He states, "The effect of this treatment in all the cases not very far advanced, that is in six of the nine cases, was a plainly favorable one. Three of them, today, are still actively and efficiently at work, four years after the conclusion of the treatment." Up to 1921 he had inoculated 200 paretics by this method and reports, "The results of this treatment were the best that I have ever seen up to that time of any treatment of general paresis. In cases in which the disease is not of long duration one can predict with a fair degree of certainty that there will be complete remission. This comes to pass chiefly where the illness is not of too long duration, less often where the disease picture is a severe one." "Complete remission occurred in more than fifty of the paretics selected for treatment so far (200). They were not only capable of taking up their occupations, but for the most part are actually at work at their for-

mer calling. This result is so much the more gratifying since so far a return of the condition has not occurred in a single one of these completely remitted cases. Two symptoms may be mentioned, specially, among those by which the improvement through this treatment revealed itself, *i.e.*, disturbances of speech and the epileptiform attacks."

Even more enthusiastic are the results of this treatment reported by Weygandt<sup>23</sup>. Weygandt reports 150 treated by malarial inoculations. He states that among 51 of these the treatment ended a year and a half prior to his report. Of this number 15 are entirely capable of occupation, 15 are capable of occupation with some defect, 7 mentally weakened but able to work, 7 unchanged and 7 dead. He states that remissions occurred in 72½% of this group, most remissions being longer and better than the spontaneous ones or those obtained by other methods. The improvement usually occurs after a few months. In only one case did a relapse occur and that patient again improved after reinoculation.

A word may be said as to the technic. Blood from a malarial patient is injected intravenously or subcutaneously into a parietic patient who then develops malaria. He is allowed to have a number of chills after which he is treated with quinine and presumably cured of the malarial infection. The method is reported to be not at all dangerous to the life of the patient. The results of this type of treatment, so far reported, are most astounding and it must be admitted that they are more satisfactory than the results reported by any form of anti-syphilitic therapy. If future investigation confirms them, there can be no question but that this method of treatment will open a new chapter in the history of the treatment of general paresis.

The foregoing gives a bird's-eye view of the literature in regard to therapeutic possibilities in general paresis. From the theoretical standpoint there seems to be no reason why the early cases of paresis should not be cured, or the process halted. The pathological changes seem to depend upon the presence of spirochetes within the central nervous system. It is possible, at least theoretically, to kill the organisms. If this is done the activity of the disease should stop and the debris be removed and scar formation heal the areas of destruction. The current conception accounting for the difficulty of obtaining satisfactory results by anti-syphilitic therapy is that the drugs used permeate the choroid plexus and limiting membranes of the nervous system only to a small extent. There is much evidence, however, to show that these drugs do permeate to some extent in a great number of cases. One part of the problem in the treatment of paresis, then, becomes that of exhibiting the drugs in a manner in which they will have the desired effect.

On the basis of the theoretical possibilities of

affecting the pathology in general paresis we have been treating these cases at the Boston Psychopathic Hospital for the past eight years. During this period we have utilized several varieties of technic. Our first method, which was the only method which we used for several years and which we have continued to use in selected cases since, was a rather intensive use of arsphenamine, mercury and potassium iodide; the routine was to give the patient of average weight two injections per week of 0.6 gram arsphenamine, continuing this for a period of at least three months and longer when indicated. At the same time the patient was given from 0.065 gram to 0.13 gram mercury, intramuscularly, each week, and varying doses of potassium iodide. Lumbar punctures were performed at intervals varying from one, two to three weeks, for diagnostic rather than therapeutic purposes. We were thoroughly convinced that some favorable results were obtained by this method of treatment. Remissions sufficient to allow the patient to leave the hospital for a period of more than six months occurred in 25% of the early series of patients treated. This percentage is to be compared with less than 5% of remissions leading to release from the hospital that were found to have occurred in untreated cases over a period of several years in the various state institutions of Massachusetts. Of the treated patients who had remissions, several of the original series, treated in 1915 and 1916, are still able to carry on productively in the community without any special supervision. On the basis of these results we have felt justified in stating that the treatment of the cases diagnosed as general paresis offers a chance of recovery in a certain percentage of those treated. The only doubt that can be cast upon the question is one of diagnosis. As has already been mentioned, it is exceedingly difficult and probably impossible to differentiate certain cases of cerebro-spinal syphilis of the meningo-vascular type from general paresis, and it is, therefore, possible that some of the patients who made satisfactory recoveries were really cases of cerebro-spinal syphilis rather than of general paresis. However, the patients conformed in symptomatology and serology to the criteria in general use for the diagnosis of general paresis and it has seemed to us that among the group of patients who have made apparently long-standing and complete remissions a great majority must be considered as instances of general paresis. From the practical standpoint this differentiation is not so important, because if recoverable cases of cerebro-spinal syphilis are diagnosed by our usual methods as general paresis, it would then follow that we owe the patient the possibility of recovery that may be obtained through anti-syphilitic treatment and not condemn him to no treatment on the basis that the diagnosis of general paresis precludes the possibility of therapeutic success.

Following the period in which the intensive use of arsphenamine, mercury and iodide alone was given, from 1916 onward, we have utilized the various methods of intrathecal therapy. We have used a whole variety of routines in these cases. Some patients in addition to the intensive, intravenous arsphenamine therapy were given injections of arsphenaminized serum after the method of Swift and Ellis and also the serum fortified by the addition of arsphenamine. Other patients have had frequently repeated spinal drainage in association with intensive intravenous arsphenamine; to still others we have given the arsphenaminized serum into the lateral ventricles in addition to the other treatment already mentioned; and within the past two years we have treated some patients very intensively by the combination of all these methods in the following manner: arsphenamine twice a week and on the first day when arsphenamine was given the patient received spinal drainage; on the next treatment day an intraspinal injection of arsphenaminized serum; on the following treatment day an intracisternal injection, and on the fourth treatment day an intraventricular injection and then the course repeated in the same fashion week after week for several months. With all forms of treatment we have been able to obtain what we believe is a considerable amount of therapeutic success. Remissions have continued to occur much more frequently among the treated than among the untreated cases. In some instances where one type of treatment was unsuccessful, with more intensive treatment remissions occurred. Our conclusion was that one type of treatment might accomplish what another type would not. We have published cases showing, for instance, that where no success had been apparent by intravenous or intraspinal treatment alone a thorough-going remission might be obtained when injections were given later into the ventricles.

Our final conclusions are that:

(1) General paresis is an active spirochetal disorder which can be theoretically arrested.

(2) Despite a great divergency of opinion as expressed in the literature, there is considerable evidence that anti-luetic treatment long continued and intensively given will arrest the paretic process in a reasonable percentage of cases, especially if begun early in the disease.

(3) Our own experience has been that anti-syphilitic treatment is of considerable value in the case of general paresis and that many paretics, even after the onset of marked psychotic symptoms, may recover sufficiently to return to their former occupations for a period of years, in some cases in our experience for more than seven years without a return of symptoms.

(4) Remissions may result from the use of intensive intraspinal or intraventricular injections when these apparently could not be ob-

tained from intensive intravenous treatment alone.

(5) More potent anti-syphilitic drugs and more efficient methods of penetration of the drug into the tissues of the central nervous system may be expected to give better results in cases of general paresis.

(6) Non-specific therapy, especially the inoculation of paretics with malaria, is reported in the German literature to give very satisfactory clinical results. It is necessary to keep an open mind at present on the value of non-specific therapy and methods of increasing the patient's immunity.

(7) There is reason to believe, both from the reports in the literature and from our own experience, that the paretic process may be arrested and symptomatology halted and the patients returned to social activities and productive work.

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## PERCENTILE CHARTS OF THE HEIGHT AND WEIGHT OF BOSTON SCHOOL CHILDREN.

BY W. T. PORTER, M.D., BOSTON.

[From the Laboratory of Comparative Physiology in the Harvard Medical School.]

John Lane is a Boston school boy. He weighs 80 pounds at 12 years of age (last birthday). Is he lighter or heavier than other boys of his age? Find 80 pounds in the left hand column of Plate II. Follow the horizontal line until it cuts the curve of age 12. From that point, follow down a vertical line until it reaches the percentile scale—at 54 per cent. John Lane is heavier than 54 per cent. of boys of his age.

John Lane, therefore, is as heavy as the average school boy of his age. Should his advisers rest satisfied with this? By no means. The curves shown in Plates I to IV give heights and weights for some thousands of Boston children who were well enough to go to school. But large numbers of these children were defective. Not a few had adenoid growths or other obstructions in the upper respiratory tract; some had diseased tonsils or pus about the teeth; and in many children, for lack of proper rest periods, food which should have gone to growth was lost in heat and motion. These and other deviations from the normal keep the height and weight down; yet cases of retarded development are necessarily included in standards based on measurements of a large school population. Such standards are too low. John Lane should do better than the average school boy.

What then should be our standard? How much bigger than the average school boy should John Lane be? Naturally, we should wish John Lane to reach the height and weight of boys who are free from physical defects and who have the benefit of expert care. The heights and weights of such boys have been recorded, for example, by Gray and Jacoby,<sup>1</sup> at Groton—a well known private school—and by Dr. Freeman,<sup>2</sup> in his private practice in New York. The average weight and height of these exceptionally favored boys<sup>3</sup> falls somewhat above the 75

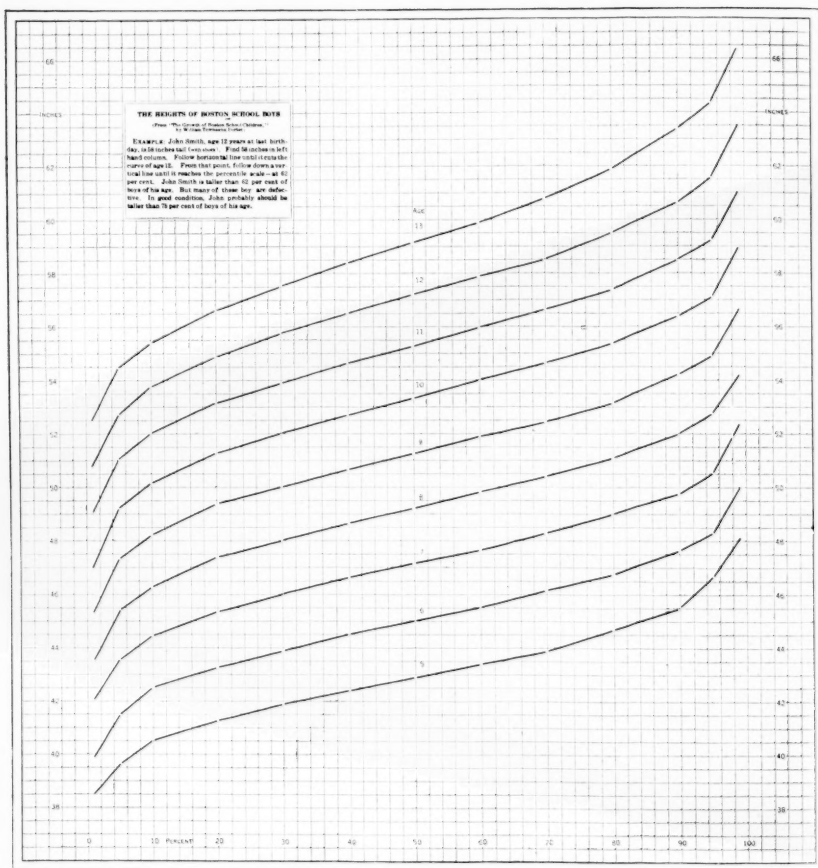


PLATE I.

## THE HEIGHTS OF BOSTON SCHOOL BOYS.

The heights (with shoes) of 2421 Boston public school boys, measured monthly from age 5 to age 13, inclusive. The measurements were begun in 1919 and were finished in 1919. All the curves in this investigation are exactly as they came from the statistical mill—none has been "smoothed" or tampered with in any way.

**EXAMPLE:** John Smith, age 12 years at last birthday, is 58 inches tall (with shoes). Find 58 inches in left-hand column. Follow horizontal line until it cuts the curve of age 12. From that point, follow down a vertical line until it reaches the percentile scale—at 62 per cent. John Smith is taller than 62 per cent of boys of his age. But many of these boys are defective. In good condition, John probably should be taller than 75 per cent of boys of his age.

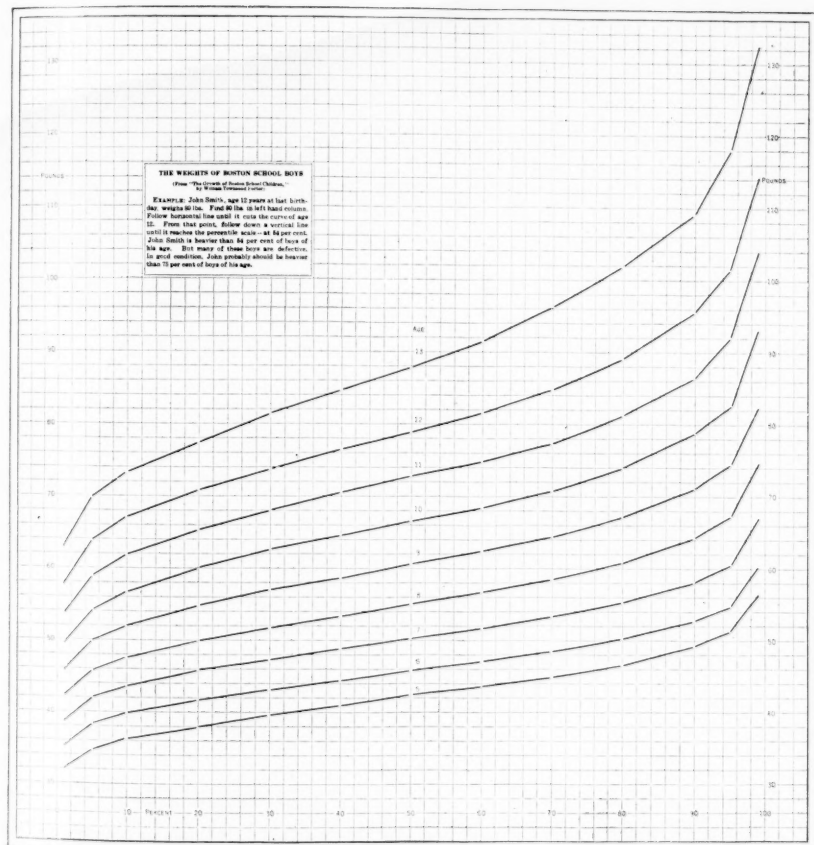
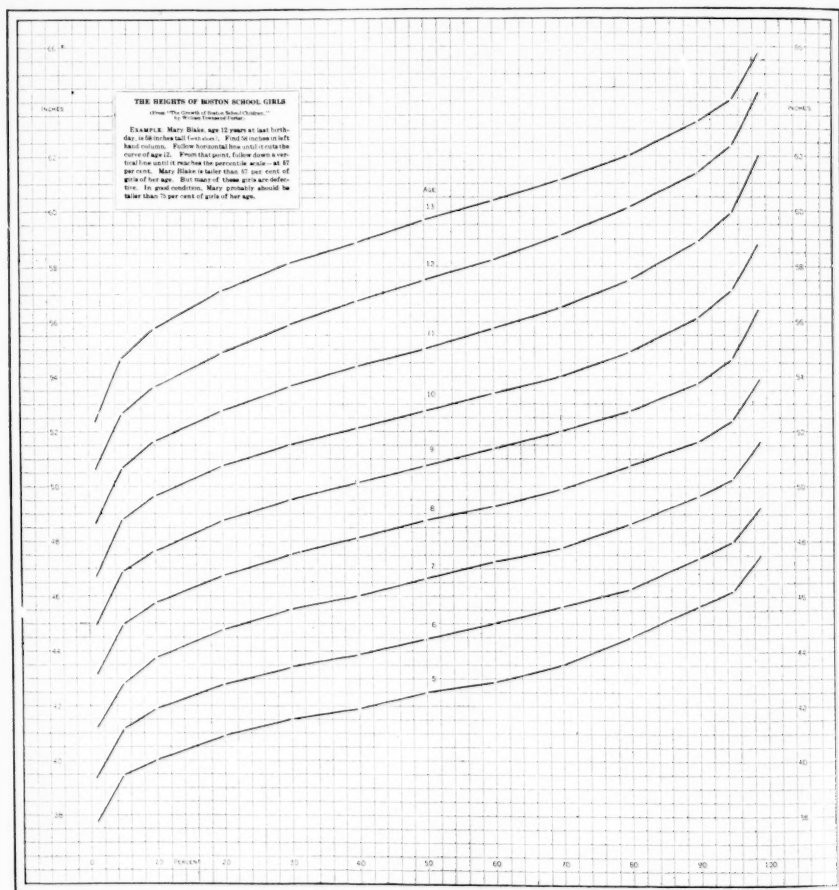


PLATE II.

THE WEIGHTS OF BOSTON SCHOOL BOYS.

The weights of 2421 Boston public school boys (indoor clothes).

**EXAMPLE:** John Smith, age 12 years at last birthday, weighs 80 pounds. Find 80 pounds in left-hand column. Follow horizontal line until it cuts the curve of age 12. From that point, follow down a vertical line until it reaches the percentile scale—at 54 per cent. John Smith is heavier than 54 per cent. of boys of his age. But many of these boys are defective. In good condition, John probably should be heavier than 75 per cent. of boys of his age.



## PLATE III.

## THE HEIGHTS OF BOSTON SCHOOL GIRLS.

The heights (with shoes) of 2380 Boston public school girls.

**EXAMPLE:** Mary Blake, age 12 years at last birthday, is 58 inches tall (with shoes). Find 58 inches in left-hand column. Follow horizontal line until it cuts the curve of age 12. From that point, follow down a vertical line until it reaches the percentile scale—at 57 per cent. Mary Blake is taller than 57 per cent. of girls of her age. But many of these girls are defective. In good condition, Mary probably should be taller than 75 per cent. of girls of her age.

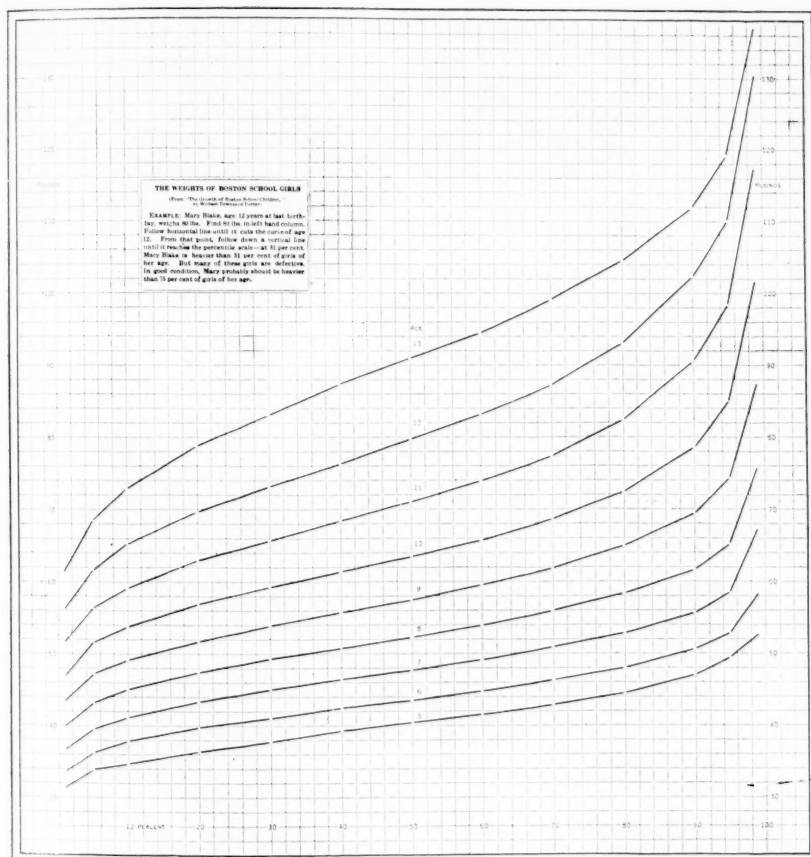


PLATE IV.

**THE WEIGHTS OF BOSTON SCHOOL GIRLS.**

The weights of 2380 Boston public school girls (indoor clothes).

**EXAMPLE:** Mary Blake, age 12 years at last birthday, weighs 80 pounds. Find 80 pounds in left-hand column. Follow horizontal line until it cuts the curve of age 12. From that point, follow down a vertical line until it reaches the percentile scale—at 51 per cent. Mary Blake is heavier than 51 per cent. of girls of her age. But many of these girls are defective. In good condition, Mary probably should be heavier than 75 per cent. of girls of her age.

percentile grade in the Boston charts. John Lane, therefore, should be taller and heavier than at least 75 per cent. of Boston school boys of his age.

This is not a counsel of perfection. The ordinary causes of defective growth are now well known. They are for the most part easily overcome. Even the more difficult cases are commonly helped by wise and persistent care. It is not the part of wisdom to forego this effort because of hypotheses which would explain the superior physique in the most successful private schools by heredity or by an environment hopelessly out of reach of the masses—hypotheses which this effort should prove or disprove.

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## THE HEELS OF BOSTON SCHOOL CHILDREN.

BY W. T. PORTER, M.D., BOSTON.

[From the Laboratory of Comparative Physiology in the Harvard Medical School.]

Papers in the *American Journal of Physiology* for May, 1920,<sup>1</sup> and July, 1922,<sup>2</sup> and the percentile charts of the height and weight of Boston

school children in this issue of the BOSTON MEDICAL AND SURGICAL JOURNAL, deal with the height and weight of 2421 boys and 2380 girls in the Boston public schools. The measurements were made each month from age five to age thirteen, inclusive, in the years 1910 to 1919. For several reasons, it was thought best to record the heights with the shoes on. By subtracting the height of heel from the recorded height in the Boston measurements, or in any similar study, the heights with heels can be compared directly with heights recorded without shoes. To get the height of heel, I have measured the shoes of not less than one hundred Boston public school boys and girls at each age from five to thirteen inclusive. Table I gives the 25, 50 and 75 percentile grades of these measurements.

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## Medical Progress.

### PROGRESS IN CARDIOVASCULAR DISEASE.

#### PART III.

BY PAUL D. WHITE, M.D., BOSTON.

#### 7. CARDIOGRAPHY AND ABNORMALITIES OF THE HEART BEAT.

*Arteriography.* A. Mougeot (*Soc. Biol.*, February, 1922) has reported sphymographic experiments with a double brassard, the upper cuff with pressure just sufficient to hinder pulsations from passing through in periodic fashion. Respiratory periodicity results in waves of pressure change apparently identical with the Traube-Hering waves. H. C. Bazett and N. B. Dreyer (*Amer. Jour. Physiol.*, 1922, lxiii, 94) have reported measurements of pulse wave velocity. They found that the velocity was much slower in the large than in the smaller and more peripheral vessels; for example, seven meters per second, which is the average speed of the pulse wave between subclavian artery and radial at the wrist, is the mean between four meters per second in the brachial and 8.5 in the radial. Peripherally, however, the speed is more dependent on vasoconstriction and vasodilatation.

*Electrocardiography.* C. S. Williamson (*Arch. Int. Med.*, 1922, xxix, 274) has reported the use of an adjustable copper cuff to be applied externally to the shaved leg of the experimental animal as preferable to the copper plates introduced under the skin. W. Straub (*Klin.*

TABLE I.

Height of Heels of Boston School Children									
Boys					Girls				
Age at last birthday	Number Measured	Percentile Grade 25 <sup>th</sup>	Percentile Grade 50 <sup>th</sup>	Percentile Grade 75 <sup>th</sup>	Age at last birthday	Number Measured	Percentile Grade 25 <sup>th</sup>	Percentile Grade 50 <sup>th</sup>	Percentile Grade 75 <sup>th</sup>
		Sixteenth of an inch					Sixteenth of an inch		
Five	101	7	9	11	Five	113	6	8	11
Six	103	7	9	11	Six	104	7	9	11
Seven	142	7	10	12	Seven	118	8	10	12
Eight	113	6	11	13	Eight	111	6	11	12
Nine	146	9	11	13	Nine	132	9	11	13
Ten	130	9	12	14	Ten	108	9	12	14
Eleven	109	8	11	14	Eleven	103	11	13	16
Twelve	143	10	13	15	Twelve	166	11	14	17
Thirteen	155	11	13	15	Thirteen	186	13	16	18

Wechsner, 1922, i, 1638, has suggested the clinical use of small needle electrodes inserted a short distance into the skin instead of the clumsy electrodes applied externally. He stated that the resistance may be very small. H. Sachs (*Klin. Wechschr.*, 1922, i, 2383) considered this method of Straub impracticable in the clinic, to which Straub replied in the same number of the journal that the method should be given a trial. E. Mosler (*Klin. Wechschr.*, 1922, i, 2321) has discussed the effect of nervous tremor on the electrocardiogram. He published one very interesting record with tremor oscillations immediately stopped by hypnosis with recurrence when the patient was told to shiver.

T. Lewis (*Arch. Int. Med.*, 1922, xxx, 269) in his Mellon lecture at Pittsburgh stated his interpretation of the initial phases of the electrocardiogram. He considered the R "due to set of the current in the axis of the heart, i.e., from above downward, over the greater part of that phase of the cycle during which the ventricle is becoming activated." As the wave spreads upward again, more voluminously than that going down, the S appears.

E. P. Carter and E. C. Andrus (*Jour. Amer. Med. Assn.*, 1922, lxxviii, 1922) reported that in infantile tetany the Q-T interval of the electrocardiogram was constantly prolonged, and decreased as the serum calcium rose. The same finding occurred in three cases of tetany in adults. Twenty cases of diabetes studied also showed long Q-T intervals not related to the amount of hyperglycemia.

G. R. Herrmann and F. N. Wilson (*Heart*, 1922, ix, 91) have made a comparison of electrocardiographic and postmortem evidences of ventricular hypertrophy in 59 cases. They concluded that "the relative weight of the two ventricles is but one of many factors which influence the form of the ventricular complex of the electrocardiogram. Its influence predominates only when the heart is greatly hypertrophied. There is no definite relation between the form of the ventricular complex and the relative weight of the two ventricles when the ventricular weight is below 250 grams. The chief factors which disturb the relation between the form of the electrocardiogram and the relative weight of the two ventricles, so it is suggested, are: (1) variations in the position of the heart, (2) variations in the arrangement of the ventricular conducting system, and (3) disturbances of intraventricular conduction. The form of the normal electrocardiogram is not determined by the relative weight of the two ventricles; it is chiefly dependent upon the position of the heart and upon the arrangement of the ventricular conducting system; sometimes one, sometimes the other, of these factors exerts the greater influence."

C. S. Burwell and P. D. White pointed out in 1921 (*Trans. Amer. Soc. Clin. Invest.*, October,

1921) that the routine electrocardiogram gives an imperfect idea of the electric axis of the heart, since it is an arbitrary record made in one plane only. The heart is a solid body and its true resultant axis should, of course, be measured in space. The shift of the axis backward or forward may, therefore, occur without effect on the axis as measured by the ordinary electrocardiogram. The determination of this axis in space is a difficult procedure involving complicated formulae and obviously inapplicable to the clinic, at least at the present time. Therefore the rough values of the methods using the Einthoven leads for the determination of "angle" or "index" suffice to give general indications of the presence or absence of pronounced ventricular preponderance. Burwell and White have advised the use of the term "left or right axis deviation" instead of "left or right ventricular preponderance" in electrocardiographic interpretation. This leaves the way clear for a later or more accurate discrimination between the causes of such axis deviation—namely, anatomical position of the heart, actual ventricular preponderant hypertrophy, and one-sided intraventricular (bundle branch) block.

A. E. Cohn and M. J. Raisbeck (*Heart*, 1922, ix, 311, 331) in a recent investigation of the relation of the position of the normal and of the enlarged heart to the electrocardiogram have found that the position of the heart in the chest has an influence on the form of the electrocardiogram which may be far reaching. From the influence of position the effect on the curves of enlargement of the heart must be distinguished. One point of particular interest and probable value in this differentiation is that the T wave of the electrocardiogram in Lead I is in the same direction as the R in normal hearts and in the opposite direction in preponderant hearts. It is in either direction in Lead III.

*Premature Contractions (Extrasystoles).* Less interest has been displayed in the study of premature beats than in the past. C. J. Rothberger (*Klin. Wechschr.*, 1922, i, 2198) has advanced the novel theory that premature contractions may be the result of the few unblocked stimuli from an ectopic focus rapidly generating action currents. The more stimuli from such a focus there are that are blocked off from surrounding muscle the fewer the premature beats, the less that are blocked the more premature contractions, until at last there may be paroxysmal tachycardia during which none at all are blocked.

*Paroxysmal Tachycardia.* L. Gallavardin (*Arch. d. Mal. d. Coeur*, 1922, xv, 299) has described two types of paroxysmal tachycardia: (1) that of Bouveret, in which the paroxysms are independent of any extrasystolic manifestation, and (2) short paroxysms apparently made up of salvos of auricular or ventricular extrasystoles. D. Danielopolu (*Arch. d. Mal. d. Coeur*, 1922, xv, 537) has cited three cases of

paroxysmal tachycardia provoked in man by digitalis and strophanthin. S. A. Levine and R. Golden (*Arch. Int. Med.*, 1922, xxix, 836) have studied the effect on heart size of paroxysmal rapid heart action in 11 patients. In eight cases there was no appreciable dilatation of the heart, in two it was definite but slight, and in one it was considerable. The amount of dilatation and the decrease in pulse pressure were dependent on three factors: (1) duration of attack; (2) speed of ventricles; and (3) general heart health. H. M. Marvin and P. D. White (*Arch. Int. Med.*, 1922, xxix, 403) have published observations on paroxysms of tachycardia in which they have stated that "paroxysms of tachycardia may occur at frequent intervals for years without incapacitating the subject." They have added one more case of the rare paroxysmal tachycardia of ventricular origin to the 10 undoubted cases already reported, and have insisted on the need of differentiating the electrocardiograms of this type of paroxysmal tachycardia from auricular paroxysmal tachycardia with bundle branch block. R. W. Scott (*Heart*, 1922, ix, 297) has very recently reported another case of paroxysmal tachycardia of ventricular origin. In this case retrograde conduction occurred during the attacks. Exercise and excitement appeared to be important factors in causing the paroxysms. Atropin in the dosage of 1/30th of a grain subcutaneously always induced attacks except when the heart was under the influence of digitalis. Quinidine in dosage of 3 grains a day prevented the paroxysms.

**Auricular Fibrillation and Auricular Flutter.** It is now over two years since the report of T. Lewis' notable discovery of the mechanism of fibrillation and flutter of the auricles. Reviews of this work have been published by a number of writers, but the reader is referred back to Lewis' own articles in *Heart* (1920-21) for complete experimental and clinical demonstration of the circus movement. H. M. Marvin and P. D. White (*Arch. Int. Med.*, 1922, xxix, 403) have found that "paroxysmal auricular fibrillation is a common type of paroxysms of tachycardia, and is seen in practice as frequently as paroxysmal auricular tachycardia and permanent auricular fibrillation. Paroxysmal auricular fibrillation is found most frequently in old age, the result of cardiosclerosis. It is also found in rheumatic and thyroid hearts, in acute pericarditis, severe acute infections, and following digitalis" and some other poisons. P. Ribierre and R. Giroux (*Bull. de la Soc. Méd. des Hôp.*, Paris, 1922, xli, 318) have reported the case of a man of 38 years with bullet wound of chest and development of auricular fibrillation. At postmortem examination a hematoma was found in the cellular tissue around the aorta and in the roof of the right auricle. H. J. Stewart and E. P. Carter (*Jour. Amer. Med. Assn.*, 1922, lxxviii, 1751) have reported the study of blood gases in auricular fibrillation and

after restoration of the normal mechanism. Of nine cases restored to normal rhythm seven showed a decided improvement in blood gases while the other two showed clinical improvement but no blood gas improvement.

**Ventricular Fibrillation.** W. J. Kerr and W. L. Bender (*Heart*, 1922, ix, 269) have described a case of probable paroxysmal ventricular fibrillation with cardiac recovery in a patient with auricular fibrillation and complete heart block while under quinidine sulphate therapy. Three points of interest were: (1) the unique electrocardiogram showing ventricular oscillations of about 1500 per minute, (2) the apparent relationship of quinidine administration to this disturbance, and (3) the recovery from the "ventricular fibrillation," the patient being alive nine months after the attack was observed.

**Auriculo-Ventricular ("Nodal") Rhythm.** H. B. Richardson (*Arch. Int. Med.*, 1922, xxix, 253) has added the twentieth case of proven auriculo-ventricular rhythm to the literature. "Clinical and pathologic observations combined to indicate a causal relation between the administration of digitalis and auriculo-ventricular rhythm."

**Heart Block.** P. D. White and L. E. Viko (*Trans. Assn. Amer. Phys.*, 1922, xxxvii, 277) have made a report on a large series of cases of heart block of all kinds diagnosed electrocardiographically at the Massachusetts General Hospital between October 20, 1914, and March 15, 1922. There were in all 252 cases out of 3219 patients electrocardiographed. This is the most extensive series on record and summarizes our present clinical knowledge of the condition. It was found that "intra-ventricular block is almost as frequently seen in a large medical clinic as is auriculo-ventricular block, four per cent. having been found in 3219 cases observed at the Massachusetts General Hospital as compared with 4.8 per cent. Complete auriculo-ventricular block (27 cases in the present series) showed one-fifth the frequency of unquestionable partial auriculo-ventricular block. . . . Arteriosclerosis was apparently responsible for the majority of the cases of complete auriculo-ventricular block and of intra-ventricular block of all degrees, but especially of the bundle branch type, where it figured as the chief factor in over 80 per cent. In this series syphilis was a probable factor in 16 of 156 cases of auriculo-ventricular block and in 11 of 130 cases of intra-ventricular block. . . . In the series of partial auriculo-ventricular block digitalis seemed to be chiefly responsible in more than half. . . . Digitalis was also largely responsible for six of the 11 cases of 'sinoauricular block.' . . . In every group the male sex was far oftener represented than the female, the ratio being about five to two in the whole series. . . . It appears from this study that intra-ventricular block is of greater significance than auriculo-ventricular

block. For its detection the electrocardiograph is essential."

H. M. Korn (Arch. Int. Med., 1922, xxx, 158) states that the older routine methods which have been depended upon to show the normal and abnormal anatomy of the Purkinje system are inadequate. He reviews recent experimental work on the subject of delayed branch conduction. J. B. Herriek and F. M. Smith (Amer. Jour. Med. Sci., 1922, clxiv, 469) studied 35 patients with bundle branch block. In 17 there were clinical manifestations of advanced cardiac disease. In nearly all instances arteriosclerosis was the cause. Twelve of the patients died within 18 months, 10 of them of heart failure. Two of the three cases autopsied showed much coronary sclerosis. O. V. C. E. Petersen (Hospitaltid., 1922, lxxv, 613) reports five more cases of right bundle branch block, to be added to the four that he has previously published. He has discovered only one case of left branch block, which accords with the general finding by cardiologists. N. Stenström (Acta Med. Scandinavica, Stockholm, 1922, lviii, 385) has published a contribution to our knowledge of incomplete bundle branch block in man. He reports four cases, three of the type of simple prolongation of the conduction time in one or the other bundle branch in paroxysmal auricular flutter, and one of the type of transient dropped beats in a bundle branch occurring with auricular premature beats. T. Lewis (Heart, 1922, ix, 283) has just reported the postmortem findings in a case of heart block in which a calcareous tumor due to coronary sclerosis had invaded and destroyed both of the branches of the auriculo-ventricular bundle just below its bifurcation.

I. DeB. Daly and E. H. Starling (Brit. Jour. Exper. Path., 1922, iii, 1) have found that after complete division of the a-v bundle, acceleration of the idioventricular rhythm can be produced by stimulation of the cardiosympathetic nerves, and that this acceleration can occur even in the heart-lung preparation by a rise of arterial pressure or increased inflow into the heart. A. V. Bosanyi (Jahrb. f. Kinderheilk., 1922, xcix, 276) reports Stokes-Adams syndrome in a boy of six years of age with three to one auriculo-ventricular block, the ventricular rate being 40. The lad had a history of scarlet fever at the age of three and had had symptoms for six months. Bullrich (Rev. d. l'Assoc. Med. Argentina, 1922) has reported the cure of a case of syphilitic heart block in a man of 35 years of age whose pulse had been slow (28) for some years. Reference has already been made to the case of probable congenital heart block reported by J. B. y Frias (see Congenital Heart Disease under Etiology and Pathology).

*Alteration of the Pulse.* Under the heading of the pulse under Symptoms and Signs reference has already been made to the paper of R.

Lyons, who has emphasized the frequency and importance of pulsus alternans, generally to be detected by sphygmomanometry.

#### S. TREATMENT.

(a) *General.* Too often in the treatment of heart disease, especially in a busy hospital clinic, reliance is placed on drug therapy and general, sometimes vague, advice without proper attention to home and occupational conditions. W. D. Reid (BOSTON MEDICAL AND SURGICAL JOURNAL, 1922, clxxxvii, 13) has discussed the social history in relation to heart patients. He cites four cases and says that "the social history often discloses why certain patients fail to make an expected improvement. At times the skillful utilization of such data greatly increases the therapeutic success achieved." C. Phipps (Jour. Amer. Med. Assn., 1922, lxxviii, 562), in discussing heart disease in industry, has made an observation of great importance: "The value of graded regular exercise in the treatment of heart disease has been well demonstrated. . . . Why cannot graded regular work be used with certain restrictions to the same effect?" There has been too great a dread of "cardiacs" in industry; if properly protected, employers should utilize them more, for in most cases such individuals are better off at work within their symptoms.

(b) *Surgery.* Three methods of surgery in the treatment of cardiovascular disease have come into prominence during the past year, one of them not as yet tried clinically. D. S. Allen and E. A. Graham (Jour. Amer. Med. Assn., 1922, lxxix, 1028) have reported the experimental trial of a new method of intracardiac surgery in dogs. After many experiments on dogs the present procedure was evolved of introducing a cardioscope with knife attached into the left auricular appendage. With this new surgical method for intracardiac operations "hemorrhage does not occur, the circulation is not interrupted, haste is not imperative, the operation is carried out under the guidance of the eye and the normal heart of the dog tolerates the procedure. . . . During the past year we have been able to cut any desired leaflet of the mitral, the tricuspid, the pulmonary or the aortic valves. This has been done with deliberation and under guidance of the eye. By the use of the cardioscope, the valves, the chordae tendineae, the papillary muscles, the muscle bundles and the openings of the large and small arteries and veins into the cavities of the heart can be clearly seen and identified. The finer details of the walls of the heart cavities can be seen." Sir Lauder Brunton in 1902 had first suggested operative relief of mitral stenosis. P. K. Brown and W. B. Coffey (Calif. Med. Assn., Annual Meeting, 1922) presented a report on the surgical treatment of angina pectoris. They reviewed the work of François-Franck, who sug-

gested in 1896 that sympathectomy might be tried in the treatment of angina. Full reports of cases have not yet been published by Brown and Coffey.\* Jonnesco of Bucharest first operated successfully for the relief of angina in 1916 by resection of the cervical sympathetic. He (*Presse Méd.*, 1922, xxx, 353) has recently described in detail the incision, the instruments necessary, and the appearance of the part after dissection. F. Brünig (*Deutsch. med. Wchnschr.*, 1922, xlviii, 1572) has written on *periarterial sympathectomy*. The best operative procedure is that devised by R. Leriche (*Presse Méd.*, 1922, xxx, 1105) who removes the adventitia of the artery as high as possible for the length of about eight centimeters. The operation is indicated, Brünig says, in all vasomotor-trophic neuroses accompanied by angiospastic conditions, like acroparesthesias, Raynaud's disease, aerospasmy, and scleroderma. He believes it is contraindicated in embolic and diabetic gangrene.

L. Seneert and P. Blum (*Bull. d. l'Acad. de Méd.*, Paris, 1922, lxxxviii, 84) have reported the second case of successful embolectomy in France—the removal of a large embolus from the right axillary artery. Operative treatment of aneurysms has already been referred to under the section of Etiology and Pathology. Ott considers double ligation and excision of the sac preferable to the method of gradual occlusion by clamps, as the result of his experience in 21 cases of peripheral aneurysm. Tuffier successfully repaired a fusiform aneurysm of the ascending aorta by compression with a sheath of fascia lata.

H. Klose and H. Strauss (*Arch. f. klin. Chir.*, Berlin, 1922, exix, 467) have reviewed the subject of surgery of the pericardium. Of 29 cases of suppurative pericarditis treated by puncture alone, all died except 4; of 27 cases treated by intercostal incision 17 died, and of 37 cases treated by extensive exposure 21 recovered. There is added a bibliography of 230 titles. G. Migonin (*Presse Méd.*, Paris, 1922, xxx, 71) discusses the surgical access to a stab wound of the heart. He states that it is easy to make a large square opening by cutting the sternum across at top and bottom, slitting it lengthwise and turning back the halves. The pericardium is then slit and turned back and the heart is exposed. He reports a case of scissors wound in the right auricle repaired with six stitches without disturbing pregnancy.

W. G. Lennox, R. C. Graves and S. A. Levine (*Arch. Int. Med.*, 1922, xxx, 57) have made an electrocardiographic study of 50 patients during operation. They found the heart rate considerably faster than that recorded by the anesthetist. About one-half of the cases showed some abnormality of the cardiac mechanism:

\*Since the writing of this review a report of five cases operated upon to relieve heart pain has been published by W. B. Coffey and P. K. Brown, *Arch. Int. Med.*, 1923, xxxi, 200. Some of the cases apparently were helped, one died six hours after the operation.

paroxysmal auricular tachycardia, premature beats and marked displacement of the cardiac pacemaker, "of physiological rather than of clinical significance."

*Tonsillectomy.* M. Goerke (*Klin. Wchnschr.*, 1922, i, 1749) sounds a note of warning about hasty tonsillectomy. He believes it is wiser if possible to delay the removal of the tonsils until about the eighth or tenth year, when their involution is normally under way and they have served whatever function they possess. E. H. Place (*Boston Medical and Surgical Journal*, 1922, clxxvii, 434) has reported 122 tonsillectomized cases of scarlet fever, and 74 of diphtheria, diphtheria carriers, tonsillitis and chorea at the South Department of the Boston City Hospital in the past five years. He believes that "tonsillectomy and adenoidectomy are valuable means of shortening the contagiousness of scarlet fever and diphtheria in suitable cases" and that "there is reason to believe that early operation in scarlet fever tends to reduce the danger of complications." F. H. Williams (*Boston Medical and Surgical Journal*, 1922, clxxvii, 412) advocates the treatment of the tonsils by radiation with radium salts instead of by operation. This is a point at present under much debate throughout the country.

(c) *Use of Drugs. Digitalis.* More and more knowledge about the action of digitalis is being steadily accumulated. Almost a score of papers appeared in 1922 with interesting observations on the use of this drug. G. C. Robinson (*Medicine*, 1922, i, 1-139) has published an extensive and valuable review on "The Therapeutic Use of Digitalis" which should be consulted by all who desire to know the present status of its use or to refer to a bibliography on the subject.

Action of digitalis. M. Maeda and F. Nakazawa (*Tohoku Jour. Exper. Med.*, Sendai, 1922, iii, 94) have published experimental work on frogs' hearts, confirming the theory of the threefold action of digitalis: (1) its paralyzing influence on the auriculo-ventricular conduction system; (2) its paralyzing influence on the pacemaker; and (3) its stimulating action on ventricular muscle. R. A. Hatcher and S. Weiss (*Arch. Int. Med.*, 1922, xxix, 690) studied the seat of the emetic action of digitalis bodies. They concluded that reflex nausea and vomiting occurred through direct action of the drug on the heart. T. Lewis (*Am. Jour. Med. Sc.*, 1922, clxiv, 157) has discussed the action of digitalis in auricular fibrillation and flutter. He concludes that its effect on the auricle is to increase the rate of the circus movement and on the ventricle to cause a twofold action on conduction, both direct and vagal.

Strength of digitalis preparations. T. J. O'Brien (*Boston Med. and Surg. Jour.*, 1922, clxxvii, 141) studied the rate of deterioration of digitalis preparations. Two samples of digitalis leaf lost steadily from 20 to 30 per cent.

above standard strength to about 50 per cent. below standard in two years; three samples of tinctures dropped in strength from 90 to 110 per cent. of normal more rapidly down to 50 per cent. or below in one year; and three samples of infusion of digitalis also lost steadily, the one which was kept warmest losing more rapidly, down to 40 per cent. of normal in fifteen months. O'Brien also insists on the importance of physicians recognizing that 60 minims, or one drachm, of the tincture of digitalis averages 128 drops. A. R. Bliss (*Jour. Lab. & Clin. Med.*, 1922, vii, 225) has written about the pharmacologic activity of drug store samples of infusion of digitalis (U. S. P. IX). Taking 15 samples at random from retail pharmacies he found an average activity of only 39.6 per cent. of normal. Five of the samples, prepared simply by diluting the tincture, were 62.6 per cent. of standard strength while the 10 samples following the U. S. P. IX were only 28.1 per cent.

Dosage of digitalis. The dosage of digitalis continues to receive comments. F. R. Fraser (*Lancet*, London, 1922, ii, 703), in discussing rapid digitalis effects by oral administration, recommends in suitable cases the use of three-fourths of the Eggleston dosage (which is saturation in about 36 hours with divided doses (larger at first) of a total amount of 0.15 gram (2½ grains) of the leaf (1.5 c.c. or 22.5 minims of the tincture) per 10 pounds of body weight). Fraser continues, "Cases with normal rhythm are not suitable for this method of administration. The method is of great value in cases of auricular fibrillation with rapid ventricular rates and urgent symptoms." P. D. White (*Jour. Am. Med. Assn.*, 1922, lxxix, 782) recommends a saturation dose of 0.1 gram of standardized leaf per 10 pounds of weight of patient in 2 days and a maintenance total dose of 0.1 to 0.2 gram daily. He prefers the powdered leaf to tincture or infusion because of its greater simplicity and accuracy of dosage. H. McCulloch and W. A. Rupe (*South. Med. Jour.*, 1922, xv, 381) have found that children have a greater tolerance for digitalis than have adults. E. Meyer (*Klin. Wchnschr.*, 1922, i, 57) has written of the occasional value of the rectal administration of digitalis. L. Gallavardin and Bocca (*Jour. de Méd. de Lyon*, January 5, 1922) have told of a man of 28 with organic heart disease without failure who tried to commit suicide by swallowing the complete contents of a flask of Nativelle's crystallized digitaline (13 c.c.). Vomiting began in one hour and persisted 36 to 48 hours. Partial auriculo-ventricular block appeared. Later when normal rhythm was restored there was sino-auricular bradycardia with a rate of 44. Recovery occurred.

Indications for the use of digitalis. P. D. White (*Jour. Am. Med. Assn.*, 1922, lxxix, 782) has laid down clear rules for the use of digi-

talis. "It is indicated in only two conditions: first, in heart failure of the congestive type; and second, in auricular fibrillation or auricular flutter with a rapid ventricular rate whether or not failure is present. Digitalis is a toxic drug and unless there is some clear indication for its use I do not believe that it should be given. It is conceivable that it may sometimes do more harm than good. . . . Its routine use in infectious disease, whether typhoid fever, influenza or pneumonia, and its routine use before or after operation is to be deplored (see also P. D. White, *Am. Jour. Med. Sc.*, 1922, clxiii, 335) . . . Even in emergency digitalis is often given when it is not indicated, for example, in so-called surgical shock or in prostration due to an infectious disease. In such a condition as vasomotor collapse there is no indication for digitalis. The particularly remarkable reputation of digitalis is due mainly to its dramatic effect in auricular fibrillation. . . . Digitalis acts not only probably as a stimulant in increasing the degree of systolic contraction in auricular fibrillation as well as in normal rhythm, but also, by its sedative action on the heart (by reduction of rate), it improves the circulation far more effectively in auricular fibrillation than in normal rhythm." S. H. Geist and J. S. Somberg (*Am. Jour. Obst. & Gyn.*, 1922, iv, 135) have written that pre-operative digitalization reduced post-operative complications in a series of surgical cases of theirs. A much larger series than they have reported would be necessary to confirm this doubtful point. W. J. Stone (*Am. Jour. Med. Sc.*, 1922, clxiii, 659) has written of the benefit of digitalis therapy before and during the influenza epidemic from late 1917 to late 1918 in 1205 cases of lobar and bronchopneumonia in an army base hospital. A continuation of this work in civilian hospitals free from the rush of war is of great importance. H. A. Christian (*Boston Med. and Surg. Jour.*, 1922, clxxxvii, 47) has published a list of misconceptions about digitalis therapy now in vogue. Some of these are:

"(a) that a regular pulse indicates that a poor digitalis effect will be obtained;

"(d) that a fast pulse is an indication for the use of digitalis;

"(e) that a murmur is an indication for the use of digitalis;

"(f) that cardiac enlargement is an indication for digitalis;

"(g) that aortic insufficiency is a contraindication for digitalis;

"(h) that myocardial degeneration is a contraindication for digitalis;

"(i) that high blood pressure is a contraindication for digitalis;" and so forth.

V. Bie and C. Schwensen (*Jour. Infect. Dis.*, March, 1922, xxx) report two cases of arrhythmia in diphtheria stopping after the administration of digitalis. Further evidence of such benefit should be secured however before

digitalis can be recommended in diphtheritic arrhythmias.

(d) *Other drugs of the "digitalis group."* H. M. Marvin and P. D. White (*Jour. Am. Med. Assn.*, December 10, 1921) reported clinical studies of the action of apocynum (Canadian hemp) and convallaria (lily of the valley). They concluded that "neither apocynum nor convallaris should be used as substitutes for digitalis. In our experience, digitalis has been characterized by quicker action, more pronounced effect, less discomfort, and more prolonged improvement, than are seen following either of the other drugs. We are convinced that both of these members of the digitalis series have no place in the rational treatment of heart failure." M. Krogh (*Ugeskr. f. Læger.*, Copenhagen, 1922, lxxiv, 1195) has written that the intravenous dose of one milligram of strophanthin is dangerous and that when that dose is tolerated the drug is probably below the standard strength. P. D. White (*Jour. Am. Med. Assn.*, 1922, lxxix, 782) considers that strophanthus, squill, apocynum and convallaria may all be discarded from our resources in the treatment of heart disease. "Digitalis will do as well or better all the things that these other drugs can do in improving the circulation." Cactus is probably inert.

(e) *Quinidine.* An extensive literature on quinidine has appeared during the past year. Hundreds of cases have now been reported. The most important references are the following: E. P. Carter, F. R. Dieuaide and C. S. Burwell (*Jour. Am. Med. Assn.*, 1922, lxxviii, 1921), L. Cheinisse (*Presse Méd.*, 1922, xxx, 734), A. E. Clark-Kennedy (*Quar. Jour. Med.*, 1922, xv, 279), P.-N. Deschamps (*Thèse*, Paris, 1922), A. N. Drury, W. N. Horsfall, and W. C. Munly (*Heart*, 1922, ix, 365), J. A. E. Eyster and G. E. Fahr (*Arch. Int. Med.*, 1922, xxix, 59), W. Frey (*Klin. Wchnschr.*, 1922, i, 47), R. T. Grant and C. C. Iliescu (*Heart*, 1922, ix, 289), W. W. Hamburger and W. S. Priest, Jr. (*Jour. Am. Med. Assn.*, 1922, lxxix, 187), T. S. Hart (*Arch. Int. Med.*, 1922, xxx, 593), J. Hay (*Quart. Jour. Med.*, 1922, xv, 313), A. W. Hewlett (*Cal. State Jour. Med.*, 1922, xx, 395), R. L. Levy (*Arch. Int. Med.*, 1922, xxx, 451, and *Jour. Am. Med. Assn.*, 1922, lxxix, 1108), T. Lewis (*Am. Jour. Med. Sc.*, 1922, elxiv, 1), T. Lewis, A. M. Wedd and C. C. Iliescu (*Jour. Physiol.*, 1922, lvi, 7), T. Lewis, A. N. Drury, A. M. Wedd and C. C. Iliescu (*Heart*, 1922, ix, 207), B. S. Oppenheimer and H. Mann (*Jour. Am. Med. Assn.*, 1922, lxxviii, 1752), J. Parkinson and J. W. McK. Nicholl (*Lancet*, London, 1922, ii, 1267), W. A. Puckner (*Jour. Am. Med. Assn.*, 1922, lxxviii, 1051), W. D. Reid (*Jour. Am. Med. Assn.*, 1922, lxxix, 1974), A. Sebastiani (*Policlinico*, Rome, 1922, xxix, 741), M. D. Silberberg (*Med. Jour. Aus-*

*tralia*, 1922, ii, 345), F. M. Smith (*Jour. Am. Med. Assn.*, 1922, lxxviii, 876), E. Starkenstein (*Deutsch. Med. Wchnschr.*, 1922, xlviii, 414, 448), P. D. White (*Jour. Am. Med. Assn.*, 1922, lxxix, 782), E. Wiechmann (*Klin. Wchnschr.*, 1922, i, 1683), F. N. Wilson and G. R. Herrmann (*Jour. Am. Med. Assn.*, 1922, lxxviii, 865), and L. E. Viko, H. M. Marvin and P. D. White (*Jour. Am. Med. Assn.*, 1922, lxxviii, 1839).

Lewis and his associates have written that "given by the mouth there is no material difference between the reactions yielded by salts of quinidine having different solubility"; that "the reaction is related in its degree to the dose of quinidine given"; that "quinidine has, weight for weight, five to ten times as powerful an action as quinine"; that "hydroquinidine, the chief impurity of commercial quinidine, has, weight for weight, a very slightly more powerful action than quinidine"; that when a single dose of from 0.6 to 0.8 of a gram of an active alkaloid of cinchona bark or its salt is given by mouth the auricular rate (circus movement) begins to fall usually in about a half hour after the dose is given and continues to fall for another hour and a half. The apex pulse curve runs level for about an hour and then rises very gradually for five or six hours but does not actually reach the original rate until 24 to 48 hours after taking the dose. The ventricular rate rises meantime. The alkaloid begins to appear in specimens of urine about two hours after it has been given. It is almost all excreted in 24 to 30 hours. Drury, Horsfall, and Munly have shown that when quinidine sulphate is given intravenously to dogs in doses comparable to those used clinically, it lengthens the absolute refractory period of ventricular muscle, reduces the rate of conduction, and makes the ventricle, on stimulation, susceptible to rapid spontaneous beating and to fibrillation. Grant and Iliescu have compared the action of quinidine with other cinchona alkaloids in seven cases of auricular fibrillation. They have found that the rate of the auricular oscillations is reduced most by quinidine and less by cinchonidine, cinchonine and quinine in the order named. The rise in the ventricular rate is earliest and greatest under cinchonine, least with quinine, while quinidine and cinchonidine hold an intermediate position. Lewis has also made the interesting observation that the action of quinidine confirms the analysis of those cases of fibrillation in which the ventricle beats slowly—interpreted in the past as combined fibrillation and heart block. This block is clearly revealed when quinidine restores normal rhythm.

Puckner in discussing quinidine and quinidine sulphate as "new and nonofficial remedies" has published their formulas— $C_{20}H_{24}O_4N_2 + 2H_2O$  and  $(C_{20}H_{24}O_4N_2)_2 H_2SO_4 + 2H_2O$ . He writes concerning the administration that "commonly 0.2 gram (3 grains) of quinidine sulphate is given as a preliminary dose and is

repeated after two hours to determine the patient's susceptibility to the drug. If there are no symptoms following this preliminary dose, therapeutic administration is begun on the following day, when from 0.2 gram to 0.4 gram (three to six grains) is given from three to five times daily for one to three days. As a rule, if the establishment of the normal rhythm can be effected, the change occurs after from one to three days' treatment. . . . If toxic symptoms occur, the administration of the drug should be discontinued." Levy has described the untoward effects as follows:

1. Unpleasant symptoms. Relatively uncommon. Cinchonism—tinnitus, nausea, and vomiting.

2. Induction of heart failure—by acceleration of the ventricular rate.

3. Sudden collapse. Unconsciousness and respiratory paralysis.

4. Occurrence of rhythms indicating intoxication of the heart muscle.

5. Embolism. Nine reported cases collected in a table. Four died, and one was left with residual hemiplegia.

Other cases of embolism have since been reported, but it must be remembered that embolism in non-quinidized cases of auricular fibrillation is not uncommon and in such a series of 100 cases of non-quinidized auricular fibrillation cases looked up by Viko, Marvin and White there actually happened to be a larger percentage of embolism than in their series of 74 cases of auricular fibrillation treated by quinidine. Levy concludes that "carefully administered, this drug is a therapeutic agent of great value; indiscriminately given, it may, on occasion, be expected to cause disastrous results." Wiechmann advises treating only compensated hearts with quinidine, not giving it intravenously, not giving it during menstruation or with other drugs. The sovereign remedy to combat quinidine poisoning he believes to be strophanthin.

Hamburger, and Viko, Marvin and White have attempted to define indications and contraindications for the use of quinidine in the clinic, the latter as the result of study of the largest series as yet recorded, 74, mostly unselected. Hamburger writes: "The following is offered tentatively as a means of selecting cases of auricular fibrillation in the order of their decreasing suitability for quinidine treatment: (a) patients with acute fibrillation or recurrent paroxysmal fibrillation; (b) patients with fibrillation of short duration without history or findings of heart failure or embolism; (c) patients with signs and symptoms of early or apparent heart failure, but without evidence of advanced heart failure." With this program Viko, Marvin and White are in agreement. They have found that close to two-thirds of all cases of auricular fibrillation have a restoration to normal rhythm

but that only half of these, that is, one-third of the total, maintain normal rhythm long enough to receive real benefit. This third is made up in the main of patients with auricular fibrillation of less than a year's duration without recent failure and without well-marked mitral stenosis. In addition to these cases White has found great benefit in the daily rationing (three to six grains of quinidine sulphate daily) of cases of paroxysmal auricular fibrillation in preventing or reducing the paroxysms. Carter's experience has been variable—of 16 cases, nine (56 per cent.) had remained regular at last report, eight of these experiencing distinct relief with the onset of normal rhythm, with a rise in blood pressure and in vital capacity. But he reports two cases of embolism, one of them of both kidneys with death. Clark-Kennedy reports eight cases helped more by the quinidine than by digitalis alone. Cheinisse cites Deschamps' greater success with quinidine in digitalized cases (56 per cent.) than in non-digitalized cases (14 per cent.). Starkenstein states that sometimes it is well to combine digitalis and quinine or quinidine. Most investigators have felt that it is wise first to digitalize to cut the ventricular rate down, especially if there is embarrassment from its speed, and then to try the quinidine.

Parkinson prefers to use the quinidine in cases of paroxysmal auricular fibrillation rather than in established auricular fibrillation. In paroxysmal tachycardia he finds it has little or no effect. In auricular flutter he finds it valuable. Smith has reported the use of quinidine in 20 cases with premature contractions; 17 were markedly improved, the premature beats being eliminated in 10 and diminished in seven. Two cases with simple paroxysmal tachycardia were tried with quinidine with improvement in one. Frey has reported the removal of persistent ventricular premature beats in two cases.

(f) *Other Drug Therapy.* A few comments should be made of other drug therapy used in combating heart disease. Digitalis and allied drugs are of value in controlling hearts with auricular fibrillation and auricular flutter and in getting rid of congestive failure. Quinidine is of value in stopping or preventing auricular fibrillation and flutter. This is symptomatic therapy and invaluable, but of more fundamental importance is the treatment of the disease process. Treatment of syphilis of heart and aorta has already been discussed in part under the heading Etiology and Pathology, Syphilis. It had been noted that in spite of vigorous anti-luetic measures pathological signs may progress steadily, and that potassium iodide and mercury should rather be given than arsphenamine to most cases. A. Nanta (*Toulouse Med.*, February 15, 1922), on the other hand, prefers sulfarsenol to mercury and gives it even in cardiac failure and in large doses of 0.60 gram with

success. W. Salant (*Jour. Am. Med. Assn.*, 1922, lxxix, 2071) has found, by pharmacological experiments, that mercury is highly toxic to the heart, causing in large doses various cardiac irregularities, such as heart block, delirium cordis and finally paralysis. N. B. Koppang (*Norsk Mag. f. Lægevid.*, Christiania, 1922, lxxxiii, 65) has reviewed the treatment of syphilitic disease of the heart. He believes that it may be remarkably effective, arrhythmia, angina pectoris and symptoms of insufficiency all subsiding. In some cases the results may be very disappointing. He has seen aortic regurgitation develop in the midst of arsenamin treatment, and any benefit obtained may be transient. These considerations, however, do not detract, he believes, from the importance of systematic treatment of syphilitic disease of the heart during the tertiary stage.

The treatment of rheumatic fever has been well discussed by H. F. Swift (BOSTON MEDICAL AND SURGICAL JOURNAL, 1922, clxxxvii, 331). After considerable experience he advises the use of salicylates in 1.0 to 1.5 gram (15 to 22 grain) doses every hour until pain is alleviated or until toxic symptoms appear (tinnitus or nausea). Usually six to twelve grams (90 to 180 grains) suffice. He then stops the drug until the next day, when one-half to three-quarters of the toxic dose is ordered. As needed the drug is continued in this quantity and then slowly reduced. He has found that the therapeutic and toxic doses of salicylates approximate one another. The chief effect is reduction of the pathological process rather than a complete destruction of the virus—bacteriostatic rather than bactericidal. He concludes thus: "It seems to us that this reduction in intensity of the disease relieves pain, spares the patient and permits a more rapid convalescence." R. H. Boots and H. F. Swift (*Jour. Am. Med. Assn.*, 1922, lxxxviii, 1922) inoculated 50 rabbits with streptococcus viridans in six experiments: 25 had been treated with sodium salicylate by stomach tube. Twenty-three animals in each group developed arthritis but the salicylated animals had a milder inflammation than did the controls. W. Janowski (*Rif. Med.*, Naples, 1922, xxxviii, 677) recommends the subcutaneous injection of salicylic acid in salt solution in the region of each joint affected in rheumatism. Mention has already been made of the possible value of occasional salicylate rations in people who have had rheumatic fever or who have rheumatic heart disease, as a prophylactic. Also it should be emphasized that the prevalent lay idea of the harm of aspirin in heart disease should be dispelled. Paulian and Dragesco (*Presse Méd.*, Paris, 1922, xxx, 680) have found marked benefit from the intraspinal injection of 1 c.c. of a 25 per cent. solution of magnesium sulphate in three cases of recurring chorea and a very severe first case.

An interesting bibliographic summary of 41 papers concerning the pharmacology and use of a number of therapeutic agents, including chemicals and drugs, appeared in the *Archives des Maladies du Cœur*, 1922, xv, 558. These therapeutic agents were heart extract, strontium chloride, rubidium, cesium, potassium, nicotine, epinephrine, chloroform, sugar, atropin, cocaine, strophanthin, physostigmine, ammonium chloride, stovaine, novocaine, quinine, barium chloride, methylene blue, hypophyseal extracts, electric currents, and radioactivity. F. Klewitz and R. Kirchheim (*Klin. Wchnschr.*, 1922, i, 1397) improved the heart action in 19 rabbits by glucose infusion; alternation if present was made to disappear. They were unable to repeat these results in the clinic. R. Niemeyer (*Ztschr. f. klin. Med.*, 1922, xcv, 405) has found no benefit from the use of glucose infusions in heart disease. Incidentally he has stated that hypoglycemia is no more frequent in people with heart disease than in healthy people. J. De Meyer (*Arch. d. Mal. d. Cœur*, 1922, xv, 749) claims that physostigmine given by mouth in doses of 1/3 to 1/2 mgm. three times a day or intravenously in doses of 1/4 to 1 mgm., when freshly prepared, exerts considerable benefit not infrequently by slowing the heart in tachycardia, whether of simple or paroxysmal type. J. Minet, R. Legrand and P. Prolot (*Arch. d. Mal. d. Cœur*, 1922, xv, 60), on the other hand, have found little or no use for physostigmine in cardiac therapy. Duvalier, Combemale and Bulteau (*Réun. biol. de Lille*, December, 1921) and Minet, Legrand and Bulteau (*Paris Méd.*, March 25, 1922) have found sparteine useless in cardiac therapy. L. Cheinisse (*Presse Méd.*, Paris, 1922, xxx, 81) has thought that calcium chloride given by vein (1 c.c. of 10 per cent. solution) seems to act as an adjuvant to digitalis, while L. Blum and H. Schwab (*Bull. de la Soc. Méd. des Hôp.*, Paris, 1922, xlvii, 214) advise against its use.

#### 9. PREVENTION OF HEART DISEASE.

More and more is heard of the prevention of heart disease. The more we learn of disease the greater the hope we have of preventing it. Associations are springing up throughout the country for the prevention as well as the relief of heart disease. Rheumatic infections, syphilis, hyperthyroidism, nephritis, hypertension and presenile arteriosclerosis are all objects for attack and reasonable ones; by preventing them we shall prevent practically all the heart disease of childhood, youth and middle age. A discussion of the problem was published by S. A. Levine (BOSTON MEDICAL AND SURGICAL JOURNAL, 1922, clxxxvi, 38) and by the reviewer a year ago (BOSTON MEDICAL AND SURGICAL JOURNAL, 1922, clxxxvi, 34).

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## A HISTORY OF THE MASSACHUSETTS MEDICAL SOCIETY.

The oldest medical society in the country to have a continuous existence, the Massachusetts Medical Society, now in its one hundred and forty-second year, has had its history written by its secretary, Dr. Burrage, who has spent seven years gathering the data for a concise story, told largely from the manuscript records and documents preserved in the files. In addition to the story proper there are eight chapters on special activities of the society, such as membership, the district medical societies, publications, police duty and discipline, malpractice defense, and an appendix containing statistical matter—the lists of officers from the beginning, the orators and Shattuck lecturers, with their topics and other necessary facts, all made available in a comprehensive index. Besides this there are brief biographies of the founders and the chief officers from earliest times through the year 1922 and over forty illustrations, including the principal meeting places during all these years, portraits of those who have had most to do in carrying on the Society, and reproductions of old documents, among them the bill for a charter

filed in the Legislature by James Lloyd in May, 1781.

The fellows of the Society will be interested to learn how their organization came into being, who were its founders, what they were like, and who, among the host of members from the founding to the present, had most to do with cherishing the Society and forwarding its activities. Also how the membership has progressively increased since 1803, the year of the reorganization, when the Society became democratic; how the standing committees were organized and what they have accomplished; the relation of the Society to progressive health legislation, such as the founding of the first state board of health and the creation of medical examiners in place of the discredited coroner system; how the Society has weathered attempts to disrupt it, and the objects for which it has striven during a long life. All these and other matters of interest are set forth as a continuous story in the first seven chapters.

The book will be of about four hundred pages. It will be sold to subscribers at the cost of publishing, namely, \$6.

## HIGHER STANDARDS FOR THE PROFESSIONS OF LAW AND MEDICINE.

BOTH the practice of law and the practice of medicine demand ability and integrity. The acquisition of requisite ability and the development of ethical standards are essential fundamentals which the practitioner of either profession must possess if the service rendered is to measure up to the expectations of a discriminating clientele. But human virtue exhibits wide variations, which in the beginning may be inherited or later may be the result of environment.

While it has been demonstrated many times that native ability and intellectual and moral honesty, although handicapped by meager opportunities for training, have opened the door to opportunities for great service, the general proposition that standard work in any profession can be more surely secured from well-trained men holds good.

For several years, under the guidance of the Council on Medical Education, the Association of Medical Colleges, and the Federation of Registration Boards, concerted efforts have been made to raise the standards of medical education, thereby securing more efficient treatment of the sick and better administration of preventive medicine. At the present time the same desire to raise standards of practice has been shown in the legal profession. At the meeting of the American Bar Association in Washington, February 23 last, the most interesting discussions were those which concerned the education of the members of the bar. Many of the most

influential leaders of the bar testified to the need for better preliminary training amounting to the equivalent of at least two years in a college of liberal arts. This proposition was endorsed by such men as Taft, Root, Dean Williston, Clarence N. Goodwin and others.

Elihu Root was most outspoken and assailed the standing and efficiency of the bar, using as an illustration the following language: "You cannot have too many rotten spots in an apple and have the rest of it good."

Dr. William H. Welch addressed the conference. He told of the progress made in dealing with the low-grade medical schools and the great improvement in medical practice which has resulted. His optimism is certainly justified by the conditions in most of our states, but unfortunately Massachusetts can claim little credit for higher standards in medicine, for the Commonwealth has steadily declined to create any high premedical requirements and only provides that applicants for registration in medicine must have had a general education equivalent to that required for graduation from a high school and a degree from a medical school that gives a four-year course. All but eight states have higher standards than Massachusetts.

Every physician in this State who is interested in efficient medical practice should carefully study this question and form his own opinion as to the reasons for the unprogressive attitude of Massachusetts.

The opposition to higher standards centers about two propositions. First, that the poor boy could not meet the expense of a more liberal education and therefore would have the opportunity of following his ambitions denied to him. The second is the opposition of two or three medical schools, for many of the students in these schools could not meet any reasonable premedical requirement, and there is little probability that such schools could meet the expense of providing equipment and teaching force which would attract students now eligible to matriculation in the accredited schools.

The people who are maintaining these discredited schools appear to believe that in time by some miraculous means these undeveloped or stunted institutions will take on new growth and blossom out into reputable schools. So far as they are honest their courage and persistence are creditable, but, unfortunately, they appear to be retrograding, and the injustice meted out to an unsuspecting medical student is almost a crime. One may fairly contend that money taken from students by these so-called colleges is obtained through false pretenses.

No one wishes to abuse or persecute these schools or students, but the students should be prevented from wasting years of valuable time and the public should be protected from poorly equipped practitioners. These seem to be the facts, and who is to blame? Since the medical profession has instructed and influenced the

people of other states, the physicians in this State cannot contend that they have done their full duty until the matter has been fully explained to the electorate.

If, after the facts have been made known to a greater extent, the people still decide that no change is desired the responsibility is transferred to the people. The Bar Association is raising its educational standards and is cleaning house. How does the medical profession stand?

Reforms can be brought about only by concerted action. If the effort for better laws is to be confined, as heretofore, to a few representatives of our Societies, conditions will remain as they are because personal interests and prejudice have been able to secure more support in our Legislature than the arguments of leading men in our profession. At the present time the blame rests partly on the medical profession in this State.

#### THE DEPARTMENT OF THE INTERIOR REPORTS THE RESULTS OF INVESTIGATIONS INTO THE USE OF GAS MASKS IN INDUSTRY.

AFTER an extended series of experiments by the Bureau of Mines the "Universal" gas mask was developed. The canister contains granular absorbents, consisting of activated charcoal, for removing organic vapors; a filter of cotton wool for removing smokes, dusts, and mists; caustic soda fused on pumice stone for removing acid gases; another cotton wool filter; fused calcium chloride for extracting water vapor that inhibits action of the next absorbent; "hypoelite," a mixture of oxides of manganese and copper with sometimes silver and cobalt that destroys carbon monoxide; and finally silica gel for absorbing ammonia. The complete mask and harness weigh about 8½ pounds. The "Fireman's canister" weighs about 5½ pounds and is more convenient to wear than the Universal mask.

The Universal and the fireman's gas masks may be worn in air containing small quantities of any noxious gas. An abundance of air is necessary, because the gas mask does not furnish the wearer with any of the oxygen necessary for life. An atmosphere in which a safety-lamp flame goes out must never be entered by a man wearing a gas mask. Oxygen breathing apparatus or air helmets only can be used in such places.

Masks of the Universal type are useful for emergency purposes around chemical plants or the like in which many different gases or vapors may be met. They are especially adapted to the work of city fire fighters, who encounter all kinds of poisonous gases. However, gas masks should not be used in mines for rescue and recovery purposes after explosions, because at such times the mine atmosphere is apt to lack oxygen. Self-

contained oxygen breathing apparatus which carry supplies of compressed oxygen are needed for mine rescue work. When the atmosphere contains enough oxygen to support a lamp flame the Universal or the fireman's gas mask will give protection against most gaseous hazards.

Details regarding these gas masks are given in Technical Paper 300, by S. H. Katz, J. J. Bloomfield, and A. C. Fieldner, copies of which may be obtained from the Department of the Interior, Bureau of Mines, Washington, D. C.

### THE NATIONAL COMMITTEE FOR THE PREVENTION OF BLINDNESS.

EDWARD M. VAN CLEVE, who has been managing director of the National Committee for the Prevention of Blindness since its organization in 1915 and is largely responsible for the growth of the membership of that organization from 65 individuals in 1915 to more than 7600 today, presented his resignation at the April meeting of the Executive Committee of the National Committee for the Prevention of Blindness. Mr. Van Cleve told the Executive Committee that the increasing obligations of his work as principal of the New York Institute for the Education of the Blind make it imperative that he be released from the responsibilities of the position of chief executive of the National Committee. He will, however, continue to serve this organization as a member of its Board of Directors.

Lewis H. Carris, formerly administrative head of the Federal Board for Vocational Education, Washington, D. C., has been selected to succeed Mr. Van Cleve as managing director of the National Committee on September 1, when Mr. Van Cleve's resignation is effective. Mr. Carris has spent the last year travelling throughout the country studying at first hand the principal causes of blindness, the effectiveness of present activities for its prevention, and the possibilities for extending those activities and of developing additional preventive measures.

As chief executive of the National Committee for the Prevention of Blindness during the last eight years, Mr. Van Cleve has directed campaigns against the principal causes of blindness: babies' sore eyes (ophthalmia neonatorum), use of the public roller towel, trachoma, eye hazards in industrial occupations, and, recently, the drinking of wood alcohol. Under his direction the National Committee for the Prevention of Blindness, with the assistance of its numerous state and local bodies, has been instrumental in the enactment of legislation for the prevention of blindness from these and other causes in more than half of the states of the Union.

During this period, blindness from babies' sore eyes—the most prolific single cause of blindness—has been cut in half, and the campaign to wipe out the scourge of trachoma from

the public school system of New York City has succeeded in cutting down the number of cases of trachoma among school children in this city from 8798 to 345.

In relinquishing his post, Mr. Van Cleve in calling the attention of the Executive Committee to the extraordinary growth of public interest in the prevention of blindness and the conservation of vision, said: "It has been gratifying to me to observe how the public has from year to year increased its support of this movement. This support has been not only generous, but universal, coming from every state and territory of the United States, and from several foreign countries. The membership of the Committee now ranges from members of the President's Cabinet, justices of the United States Supreme Court, and the greatest financiers of the country, to common laborers, school teachers in rural districts, and children in elementary schools."

Mr. Van Cleve reported to the Executive Committee that there is still need for a great deal of work for the prevention of blindness. There has been, he reported, a recrudescence of trachoma. Although the National Committee and its cooperating bodies have, in recent years, given more serious attention than ever before to this disease, conditions are still serious in the far Southwest, in the coal mining sections of southern Illinois, and throughout the Indian reservations. He said that there are more than 30,000 cases of trachoma among the Indians alone.

Among the other important needs cited by Mr. Van Cleve were: Conservation of vision classes to provide educational facilities for more than 50,000 school children, whose education is being hampered by marked defective vision; more stringent legislation regulating the manufacture and sale of wood alcohol; greater attention to instruction in sight conservation among the normal schools and the teachers' colleges throughout the country; permanent national research into the methods of eliminating industrial eye accidents, which at present are estimated to cause 15 per cent. of the total blindness of the country.

The following officers of the National Committee for the Prevention of Blindness were re-elected:

Mr. William Fellows Morgan, President.

Dr. F. Park Lewis, First Vice-President.

Miss Louisa Lee Schuyler, Second Vice-President.

Mrs. Winifred Hathaway is Secretary of the Committee and George Blagden, Treasurer.

### CENTENARY OF LOUIS PASTEUR.

A prospectus of a journey in France organized especially for members of the medical and allied professions and their families on the occa-

sion of the centenary celebration of the birth of Louis Pasteur has been issued.

The journey is officially sponsored by the French Government, and will be distinguished by official receptions and ceremonies at the Pasteur Institute, the School of Medicine, the Municipality and other institutions in Paris and Strasbourg, at the International Hygiene Exhibition at Strasbourg, at Dôle, Pasteur's birth-place, and at the scene of his early studies, Arbois.

A special invitation is tendered in addition by the cities of Aix les Bains, Evian and Vichy, where the medicinal waters and thermal establishments will be of professional interest to the visitors, and where the city authorities and local practitioners will join hands in extending a most cordial welcome.

While in Paris, visits will be made to Versailles and to other historic places surrounding the capital, as well as to the most important monuments and institutions within the city. Belleau Woods, Chateau Thierry, Reims, Verdun, and Argonne and the American Cemetery at Romagne will serve as reminders of the part played by the American Army and its Medical Corps in the World War. Days of motoring through the scenic loveliness of the Vosges, the Jura and the Alps will add a touch of exhilarant relaxation, making the journey a well-rounded holiday.

The cost is established in French currency, namely 5820 francs, and does not include the ocean transportation, choice of which is left to individual discretion, although, of course, the Executive Committee is ready to assist prospective participants in that respect, as in all others relative to the journey.

For the convenience of intending participants, details of the plan have been made available at the offices of trans-Atlantic steamship lines in the principal cities throughout the United States. Full particulars may be secured direct from the Executive Committee, 281 Fifth Avenue, New York, N. Y.

Honorary Committee.—His Excellency J. J. Jusserand, French Ambassador to the United States of America, President; Dr. Joseph S. Blake, New York, N. Y.; Dr. Harvey Cushing, Boston, Mass.; Dr. George M. Kober, Washington, D. C.; Dr. Ernest Laplace, Philadelphia, Pa.; Dr. Franklin H. Martin, Chicago, Ill.; Dr. Rudolf Matas, New Orleans, La.; Dr. William J. Mayo, Rochester, Minn.; Dr. George D. Stewart, New York, N. Y.

Executive Committee.—Dr. Julien J. Champenois, Director, National Bureau of French Universities and Schools, 1819 Broadway, New York; L. J. Garcey, General Agent, Railways of France, 281 Fifth Avenue, New York; J. Perret, Director, Office Français du Tourisme, 342 Madison Avenue, New York.

## Miscellany.

### THE TRI-STATE DISTRICT MEDICAL ASSOCIATION.

ON Tuesday, April 17, some 360 members of the Tri-State District Medical Association, hailing from Iowa, Illinois, Wisconsin and Minnesota, arrived in Boston. The program arranged for them during their two-day visit included clinics in all of the larger hospitals. On Tuesday evening a dinner was given for them at the Harvard Club. President Lowell presided. He also addressed the gathering, as did Dr. Horace M. Brown of Milwaukee, the President of the Association, and Sir Harold Stiles. President Lowell and Sir Harold Stiles were elected to honorary membership.

The program of this clinic trip of the Tri-State Association is truly remarkable. Visits are being made to Cleveland, Boston, New Haven, New York, Philadelphia, Baltimore and Washington. In each city the best work that the medical profession can show is laid before the visiting doctors. The entire schedule occupies but two weeks; it is safe to say that the value of the time consumed is more than equaled by the new points in technique, the broader vision of medical problems, the acquaintance with medical personalities, and the stimulation to better work, which anyone is bound to receive from such a program.

We congratulate most heartily our confrères from the mid-West, and admire their coöperative spirit and executive ability. Boston is most happy at having been given the opportunity to welcome them.

### THE MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.

THE annual meeting of this Society was called to order by the President, Dr. E. H. Bigelow, at 11 o'clock, April 18, at the American House, Boston. After the usual business affairs had been acted on the annual oration was delivered by Dr. F. G. Curtis of Newton, who clearly brought to the attention of his audience the duties and responsibilities of physicians in dealing with the legal requirements affecting medical practice, especially in matters of public health. Dr. Curtis especially emphasized the purpose of boards of health to act in coöperation with doctors rather than as compelling forces using drastic measures to secure compliance with statutory requirements. The address contained valuable information for practitioners and will be published as soon as possible.

After the address the following officers were elected for the ensuing year:

President, Eugene A. Darling, Cambridge; Vice-President, George L. West, Newton; Secretary, John Houghton Taylor, Cambridge; Treasurer, Edward Mellus, Newton; Commissioner of Trials, Arthur W. Griffin, Malden; Member of the Nominating Committee of the Massachusetts Medical Society, Edmund H. Stevens, Cambridge; Alternate, Walter E. Fernald, Waverley.

Censors.—Irving J. Fisher, West Newton; James Glass, Framingham; John P. Nelligan, Cambridge; Herbert E. Buffum, Somerville; Charles F. K. Bean, Medford; Orator, Horace P. Stevens, Cambridge.

Councillors: District No. 1, Cambridge.—Edmund H. Stevens, Frederick J. Goodridge, W. S. Whittemore, James W. Sever, Willard A. Putnam, Sherman R. Lancaster, Frederic B. M. Cady.

District No. 2, Charlestown, Everett, Malden.—John Duff, Clarence H. Staples, Henry J. Keane, Fritz Walter Gay.

District No. 3, Medford, Somerville.—Charles E. Mongan, Warren D. Ruston, Frederick G. Smith, Allan Blake.

District No. 4, Arlington, Belmont, Concord, Lexington, Waltham, Watertown.—Walter E. Fernald, Charles O. Chase, Charles B. Fuller, Harold R. Webb.

District No. 5, Brighton, Newton.—George L. West, Edward A. Andrews, Francis G. Curtis, Sylvester F. McKeen, Lewis H. Jack, Irving J. Fisher, Edward Mellus.

District No. 6, Ashland, Framingham, Holliston, Hopkinton, Natick, Sherborn.—Charles E. Hills, John E. Dodd.

District No. 7, Hudson, Lincoln, Marlborough, Maynard, Stow, Sudbury, Wayland, Weston.—Fresenius Van Nuys.

Auditors.—Charles F. Maguire, Somerville; Arthur N. Makechnie, Cambridge; Alvah Cochran Cummings, Newton.

The President informed the Society that Dr. Walter L. Burrage, Secretary of the Massachusetts Medical Society, had been at work for seven years preparing a history of the Massachusetts Medical Society, and urged the members of this district to endorse this work of the Secretary by subscribing for the volume. He appointed a committee to solicit subscriptions, and stated that he hoped that the members of the Middlesex South District would respond with the highest percentage of subscriptions of any of the district societies.

After remarks by Dr. Mongan and others the meeting adjourned to meet in the banquet hall, where the annual dinner was served.

#### CHILDREN'S HOSPITAL STAFF CLINIC, APRIL 13, 1923.

The first case of this meeting was shown by Dr. James S. Stone. This was one of elephan-

tiasis of the right leg, with uniform hypertrophy of all parts of the leg. The condition is largely a disturbance of the lymph, and sometimes of the blood vessels. There is no known treatment, although sometimes spontaneous improvement takes place, as in this case.

Dr. Lynne A. Hoag showed a case of atrophy which began with a papulo-vesicular rash, going on to bulla formation. A few weeks ago edema of the hands and feet developed with cold and reddened extremities. Some similarity to pellagra may be noted. Lack of appetite and emaciation are prominent signs. The etiology is unknown. The general prognosis is good, although some cases have died. There seems to be a close relation between the disease and upper respiratory infections. Tonsillectomy and cleaning out the sinuses has cleared up some of the cases.

Dr. Frank R. Ober presented a case which began four weeks ago with severe pain in the right knee, and painful manipulation of the leg. The temperature was 101° and the white count 7000. Infection was located in the hip joint, mixed staphylococcus and streptococcus. Posterior drainage was done and the girl is now apparently well.

Dr. J. R. Wilson showed two pathological preparations, one of an endothelioma of the pleura, the other of an embryoma of the liver with large cysts lined with columnar and flattened epithelium. Evidence of proliferation was found. Sir Harold Stiles, Regius Professor of Surgery at Edinburgh, in commenting on this case, described a case of cyst of the liver operated upon by himself, with recovery. In all, twelve single cysts of the liver have been reported.

A case of apparent traumatic periostitis of both ulnas was then shown. This case was that of a boy of six years, with a family history of tuberculosis, sent to the hospital as a case of osteomyelitis. X-ray revealed periostitis of both ulnas and a fracture of the right. Sir Harold Stiles discussed the case, stating that the periostitis must have antedated the fracture. He believed that this was a case of early tuberculous diaphysitis, discovered accidentally on account of the subsequent trauma.

Following the presentation of cases Sir Harold gave a short talk on surgical tuberculosis in Scotland. Cases are seen much later than in this country, hence the excision of joints must often be performed. Ninety per cent. of these cases are bovine in origin, as 70 per cent. of the cattle in Scotland are tubercular. Koch in 1901 stated that human beings could not acquire bovine tuberculosis. All the evidence is now to the contrary. Cows with advanced tuberculosis are so infectious that one drop of milk from a tuberculous udder, diluted 100,000 times and injected into a guinea pig, will cause tuberculosis.

RESUMÉ OF COMMUNICABLE DISEASES.  
MARCH, 1923.

*General Prevalence.*—The more prevalent communicable diseases showing an increase over last month are as follows: Chicken-pox, diphtheria, mumps, scarlet fever, whooping cough. The more common diseases were reported as follows:

	March 1923	February 1923	March 1922
Chicken-pox .....	574	567	508
Diphtheria .....	700	662	713
Encephalitis lethargica .....	54	28	29
Influenza .....	486	1,162	1,645
Measles .....	3,612	3,874	2,643
Pneumonia, lobar ....	792	979	988
Scarlet fever .....	1,569	1,301	996
Tuberculosis, pulmonary .....	468	508	583
Typhoid fever .....	42	22	30
Whooping cough ....	1,884	1,404	517
Gonorrhea .....	377	313	409
Syphilis .....	165	141	188

## RARE DISEASES.

*Anterior poliomyelitis* was reported from Acton, 1; Upton, 1; Webster, 1; West Newbury, 1; Worcester, 1; total, 5.

*Anthrax* was reported from Northbridge, 1. *Dog-bite requiring anti-rabic treatment* was reported from Ayer, 1; Hingham, 2; Lowell, 9; Winthrop, 1; total, 13.

*Encephalitis lethargica* was reported from Arlington, 1; Boston, 9; Braintree, 1; Cambridge, 3; Chelsea, 1; Clinton, 3; Everett, 1; Fall River, 1; Holyoke, 2; Leominster, 1; Lynn, 2; Marlboro, 1; Melrose, 1; Millbury, 2; New Bedford, 1; Somerville, 2; Springfield, 2; Taunton, 2; Uxbridge, 1; Webster, 1; Winchendon, 1; Worcester, 15; total, 54.

*Epidemic cerebrospinal meningitis* was reported from Boston, 4; Cambridge, 1; Fall River, 1; Framingham, 1; Lynn, 2; Somerville, 1; Sutton, 1; total, 11.

*Malaria* was reported from Boston, 1.

*Septic sore throat* was reported from Boston, 5; Fall River, 1; Gardner, 1; Haverhill, 2; Lawrence, 1; Springfield, 1; West Newbury, 1; total, 12.

*Trachoma* was reported from Boston, 3; Worcester, 2; total, 5.

*Trichinosis* was reported from Boston, 1; Everett, 2; total, 3.

THE WOMEN'S FOUNDATION FOR  
HEALTH.

In 1919, a six weeks' international conference of medical women was held in New York City. One result of this conference was the formation of the Women's Foundation for Health. The educational division of this Foundation, in co-operation with the Council on Health and Public Instruction of the American Medical Association

and the Bureau of Social Education of the National Board of the Young Women's Christian Association, is issuing the Positive Health Series, which is intended to stimulate in the women of the country an interest in health. It is the belief of the Foundation that more can be accomplished by so-called "preventive measures" than by the combating of disease after it is once established. The titles of the six pamphlets are as follows:

Pamphlet No. 1.—"The Newer Conception of Health."

Pamphlet No. 2.—"The Individual and the Community."

Pamphlet No. 3.—"Nutrition in Relation to Health and Efficiency."

Pamphlet No. 4.—"Mental Health."

Pamphlet No. 5.—"The Heritage of Life."

Pamphlet No. 6.—"Recreation."

This series came off the American Medical Association press last summer at about the time the Foundation set up its independent headquarters and staff and announced its program headed with these two objectives:

## OBJECTIVES.

I. To establish the conviction that health is generally attainable through individual effort and responsibility.

II. To establish the conviction that mental health is as procurable as physical health.

To approach these objectives the Foundation advises health inventories followed by periodic examinations; correct daily health habits and exercises; education in food values; adequate knowledge of the process of reproduction; adaptation of recreation to individual need; adjustment of work and living conditions to the individual's physical and mental capacity.

THE RÔLE OF SYPHILIS IN INDUSTRIAL  
DISABLEMENT: ANALYSIS OF 291  
PHYSICAL SURVEYS.

BY PAGE EDMUNDS, M.D.

*Industrial Surgery, University Hospital,  
Baltimore, Md.*

A great many requests for relief coming to a Baltimore Company because of unsatisfactory diagnosis as evidenced by delayed convalescence and prolonged disability led the writer to an investigation of the cause, for the purpose of settlement of claims. The number of positive syphilitic findings was so great that particular attention was directed to this condition as playing an important part in and frequently causing the disablement. The diagnosis of syphilis was based on the physical findings, blood and spinal fluid, Wassermann test. There were 291 surveys made and the blood was examined in 222 cases, of which 187 gave a negative reaction and 35 a positive. In 69 cases of the

series no blood examinations were made. Of the total number of patients, 291, 12 per cent. had syphilis. Of the 222 cases in which the Wassermann test was made, 15 per cent. gave positive results. In the 35 cases of these were 32 positive blood Wassermans and three negative with positive spinal fluid. There were 14 positive spinal fluids and two negative; in 19 cases the spinal fluid was not obtained. In 11 cases both blood and spinal fluid were positive. Twelve patients gave a definite history of syphilis. Nineteen had definite cerebrospinal syphilis; of this number, 14 were traimmen and had to do with the operation of trains. Of the 35 patients with syphilis, 15 are now permanently disabled; and four are dead. The total amount of time lost by these 35 employees up to May 1, 1921, was 13,946 days. The largest number of days lost by one person was 2,003, the smallest 30, the average being 410. The cost to the relief department for the same period was \$25,296, the cost to the company as compensation, \$25,415.00, a total of \$50,711.00.

The important questions arising out of a study of this sort are: What measures can be taken to help those already disabled; How to prevent a continuance of this condition among employees; Guarding the safety of the traveling public. The author suggests that these questions be taken up from three viewpoints: that of the community and the employer, and that of the physician. These are gone into in detail and excellent conclusions given. A plea is made for thorough examination, early diagnosis and thorough treatment when the disease is found. Six brief case histories are given to show the necessity for a careful physical examination in the selection of men for important positions as traimmen.

His concluding remarks are noteworthy, "We must not overlook the fact that these persons (the paretics and ataxias) are beyond human aid and must go down to mental breakdown and death and that nearly all of them could have been cured had their condition been recognized early."

This number is but a small percentage of the cases of the disease in our service. Had we been able to prevent three or four of these thirty-five cases from going on to complete disablement, we would have saved enough money to cover the additional expenses of the proposed examination.—*American Social Hygiene Association.*

#### GIFT OF \$2,250,000 TO STATE OF IOWA.

*To Enable the State to Complete Hospital at Saving of Fifty Cents on Dollar.*

President W. A. Jessup of the University of Iowa has announced that the college of medicine has been proffered the largest gift ever made to a tax-supported institution in the United

States, namely, \$2,250,000 to assist in completing the building and equipping of the new hospital and teaching laboratories. These will be erected on the beautiful site purchased at the time the Children's and the Psychopathic Hospital units were built. The site is on the west bluff of the Iowa river facing old capitol.

Dr. Abraham Flexner of the general education board and Dr. George E. Vincent of the Rockefeller Foundation, after acquainting themselves with the needs of the situation by personal visits to Iowa City, informed President Jessup that they would recommend to their boards favorable action on the request of the State Board of Education to assist in completing the plant. The estimated cost of the completed job is \$4,500,000; and agreeable to these recommendations the two foundations joined in proffering a gift of \$2,250,000, providing the state of Iowa shall, over a period of five years, agree to complete the plant. This will require an appropriation of \$450,000 a year for the next five years.—*The Journal of the Iowa State Medical Society.*

#### THE PLIGHT OF THE RUSSIAN DOCTOR.

The plight of the Russian doctor at the present time is not an enviable one. All medical men in Russia are in the service of the state. A Russian doctor who has served under the Bolsheviks communicates some weighty facts:

"One of the magnificent theories of Russian Communism is that as the medical service has been nationalized and public health is the care of the State, everybody receives medical treatment free. How does this work out in practice? The writer tells us that there was an ancient custom in Russia of paying a small fee to a doctor even when that doctor was a municipal official who was not supposed to be paid for his ministrations to the poor. The custom lingers. Although, of course, most patients are quite unable to pay the Communal doctors anything, those who can, do so. How difficult it is to break with custom! People talk of abolishing 'tips' in England, but there are thousands of poor people who today go on giving tips to men who are richer than themselves. The writer says that the fee which no Communal doctor can ever bring himself to refuse is a pound of bread. Compared with this treasure a handful of roubles are of no value at all. The Municipal doctors used to be steady and experienced men, but the Communal doctors who have replaced them are mostly young and unpractised. Frequently they are students in their fifth, fourth, or even in their third year. Sometimes they are doctors' assistants. The population has no confidence in such advisers. But even when the doctors' prescriptions are sound there is generally no means of providing them. . . . The fact is that nearly all the diseases in Russia come from

famine-exhaustion, and if the doctor could hand out food he would rapidly cure his patients in almost every case."—*Spectator*.

### Obituary.

#### GEORGE BRUNE SHATTUCK.

RESOLUTIONS PASSED AT A MEETING OF THE EXECUTIVE COMMITTEE OF THE BOSTON MEDICAL LIBRARY, APRIL 16, 1923.

In the death, on March 12, 1923, of Dr. George B. Shattuck, the Boston Medical Library has lost one of its former chief officers, its vice-president from 1904 to 1906 and its president for thirteen years till 1919. He belonged to a family which, in several generations, had taken active part in helping on all good causes which had for their object the furthering of the best interests of the medical profession.

On several public occasions Dr. Shattuck had urged the importance of the Medical Library to the community at large as well as to the physician; at the meeting to accept the library of Dr. O. W. Holmes he was one of the principal speakers, and also at the time of the death of Dr. Holmes, as well as at the meeting called to help in raising funds for the new library building in the Fenway.

He and his brother gave to the library the oil painting of their father, Dr. George C. Shattuck, which hangs in Sprague Hall; and in almost every annual report of the library in recent years his name appears as a prominent donor of books and journals. When he was president of the Massachusetts Medical Society he used his influence to call the attention of members to the great value of the Medical Library, which his long years as editor of the BOSTON MEDICAL AND SURGICAL JOURNAL had impressed on him.

As a presiding officer he was ideal, having the ability to hold the discussions in the proper channels without wandering. This was combined with a pleasant sense of good humor, which made for smoothness of action. He was patient and faithful in his attendance at the meetings of the Society and the committees, which he rarely missed.

The Executive Committee, recognizing Dr. Shattuck's lifelong interest in medical literature, his sympathetic devotion to the welfare of the library since its early days and as its presiding officer, desires to acknowledge and record its good fortune in having had him as a colleague and adviser for many years.

#### CLIFFORD WEBSTER STICKNEY, M.D.

DR. CLIFFORD WEBSTER STICKNEY died at Holden, April 9, 1923, at the age of sixty-seven.

The son of Alvah and Rebecca Spaulding Stickney, he was born at Townsend, Mass., December 21, 1855. He was educated at Cushing Academy, Ashburnham, and at the University of the City of New York, where he received his M.D. in 1881. He settled in Holden that year and joined the State Medical Society. In 1883 he married Carrie E. Dawson. They had a son, Ralph Dawson Stickney, who with his mother survives.

Dr. Stickney was Superintendent of Schools of Holden from 1883 to 1886. From 1911 to his death he was Town Clerk. Among his memberships were the Worcester District Medical Society, Wachuset Medical Improvement Society, Ridgely Lodge, I. O. O. F., and Holden Grange.

#### RESOLUTIONS UPON THE DEATH OF DR. HOWARD.

The following minute is offered for record:  
Dr. HERBERT B. HOWARD, chairman of the Board of Trustees of the Gardner State Colony, died March 6, 1923.

A physician, devoting a lifetime of service in the special field of hospital administration; superintendent of a great infirmary ministering to the poor, weak, diseased and unfortunate wards of the Commonwealth; administrator and builder of great hospitals dedicated to the relief of pain and suffering; public officer charged with high duties and heavy responsibilities; member of the first Board of Trustees of the Gardner State Colony; administrator, efficient, honest, wise, developing great institutions; making them more efficient instruments in the service of mankind; idealist blazing a new trail through the once dark forest of ignorance in the care and treatment of the insane; humanitarian, kindly, sympathetic, lovable, in whose passing the Commonwealth of Massachusetts loses a citizen, who, during all of his active services of the highest merit, the Gardner State Colony, a member of its original Board of Trustees and the chairman of its present board, who was identified with the original conception which caused this institution to be erected, and during all the years of its life has been its unfailing friend and loyal devoted supporter.

In recognition of his service to the Commonwealth of Massachusetts, to this institution, and in expression of their own sense of personal loss, the Board of Trustees of the Gardner State Colony inscribe this minute upon their records, adjourn their meeting in his memory and honor, and order that a copy of this record be forwarded by the Clerk of the Board to his widow and family.

#### RECENT DEATHS.

DR. GEORGE WILLIAM NASH, formerly of Cambridge, is reported to have died at Roxbury, Virginia, April 13, 1923. Dr. Nash was of the Harvard class of 1878 and of the Harvard Medical School of 1884.

He joined the Massachusetts Medical Society in 1887 and shortly went to study in Hamburg, Germany. After practising in Cambridge some years he retired and moved to Hurley, New York State. He is survived by his widow, two brothers and a sister.

DR. GEORGE LINCOLN GOODALE, an honorary member of the Massachusetts Medical Society since 1892, died at his home in Cambridge, April 12, 1923, at the age of 83. He had been Fisher professor of natural history and director of the botanic gardens at Harvard for many years.

### News Items.

BEVERLY HOSPITAL.—A demonstration clinical meeting was held Tuesday, April 17, at the Beverly Hospital. Many interesting cases were discussed.

DEVEREUX MANSION.—Although Dr. Herbert J. Hall has died, the work developed under his guidance at Devereux Mansion will be carried on by Drs. Edward K. Burbeck, Loring T. Swain and Herbert A. Durham.

EAST BOSTON MEDICAL SOCIETY.—At a meeting of the East Boston Medical Society on April 9, 1923, Dr. Frederick Irving of Boston read a paper on "The Use and Abuse of Forceps." The following officers were elected: President, Dr. Richard Houghton; Vice-President, Dr. Ernest Booth; Treasurer, Dr. A. L. McLaren; Secretary, Dr. Joseph H. Burnett.

SUIT FOR LIBEL.—Dr. G. H. Sherman of Detroit, who conducts bacteriological laboratories, states in a recent letter that he has instituted legal proceedings against William Randolph Hearst, Paul W. De Kruif and others for an alleged libel, in a suit for \$1,600,000. Dr. Sherman intimates that other articles criticizing physicians are being prepared by De Kruif collaborating with Sinclair Lewis.

THE NEW ENGLAND SOCIETY OF PSYCHIATRY.—On April 11, 1923, the New England Society of Psychiatry held at the Foxboro State Hospital its semi-annual meeting. Under the direction of the Superintendent, Dr. Albert C. Thomas, the members of the Society were given an opportunity to visit all parts of the hospital and to examine in detail the recent extensive alterations and new buildings now under construction. Very interesting papers were presented by Dr. C. Macfie Campbell and Dr. O. J. Raeder. Officers were elected for the ensuing term as follows: President, Dr. Arthur H. Ruggles, Providence, R. I.; Vice-President, Dr. C. H. Dolloff, Concord, N. H.; Secretary Treasurer, Dr. Rodrick B. Dexter, Taunton, Mass.

WEEK'S DEATH RATE IN BOSTON.—During the week ending April 14, 1923, the number of

deaths reported was 245, against 259 least year, with a rate of 16.58. There were 41 deaths under one year of age, against 40 last year. The number of cases of principal reportable diseases were: Diphtheria, 71; scarlet fever, 93; measles, 185; whooping cough, 71; typhoid fever, 4; tuberculosis, 38. Included in the above were the following cases of non-residents: Diphtheria, 3; scarlet fever, 13; measles, 2; tuberculosis, 4. Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 2; measles, 1; whooping cough, 2; typhoid fever, 2; tuberculosis, 18. Included in the above were the following cases of non-residents: Diphtheria, 1; scarlet fever, 1; tuberculosis, 1.

### Correspondence.

#### LONDON LETTER.

(From Our Own Correspondent.)

London, April 3, 1923.

The Problem of Leprosy.—According to the most recent accounts, there are 3,000,000 lepers or thereabouts in the world. Sir Leonard Rogers of the Indian Medical Service, who has lived for the greater part of his working life in India, and who is one of the first authorities on tropical diseases, gave a lecture on the subject of leprosy a short time ago before the Dominions and Colonies and Indian Sections of the Royal Society of Arts in London. He reviewed the whole leper problem and pointed out the recent advances towards its solution. He believes that the lepers of the world are distributed somewhat as follows: Europe, 7044, including in South Russia, 1200; the Baltic Provinces, 6000; Turkey, 600; Crete, 1000; Asia, 1,700,000; China, 1,000,000 (a rough guess, but probably in the neighborhood of the correct figure); India, official estimate, 102,503; according to Rogers, 500,000; Japan, 102,585; Indo-China, 15,000; Philippines, 4000; Siam, 14,000; Java, 4,443; Palestine, 600; Ceylon, 580; Persia, 150; Africa, 525,400, of whom more than 500,000 occur in tropical Central Africa, 5 to 60 or more per 1000; Egypt, 6513; Madagascar, 4200, and South Africa with Natal, 3640. It is estimated that South America contains 23,754 lepers. North America has few. The estimates for the United States vary from 46 to 1000, the latter figure being probably nearer the mark. The Pacific Islands, according to Rogers, may be credited with 5000 lepers. Australia has a very few. Some countries were omitted from Rogers' tables.

Perhaps the most instructive, as it was the most encouraging part of the address was that which dealt with the advances in treatment of the disease. It is only within quite recent times that the belief that it is infectious, held in ancient times and overturned some sixty years ago, has been revived. It is now known to be a communicable disease, for which isolation of the infective cases is the only practical preventive measure, but which the experience of Norway has conclusively shown to be effective wherever it can be adequately and persistently carried out. Hitherto the want of an effective treatment of the disease has led to the inevitable concealment of the early, not easily recognizable but infective stages as long as possible, to save the patients from lifelong incarceration, and therefore segregation is almost impossible in many countries.

Fortunately, the researches carried out on chaulmoogra oil and hydrocarpus oil, including gynocardic

acid, the lower melting point fatty acids of chaulmoogra oil, sodium gynocardate, and ethyl ester chaulmoograte, and also on soluble preparations of cod liver oil, soya bean, etc., the situation has been changed, and now that a treatment is available for both ameliorating the condition of lepers and also rendering the disease far less infective by destroying so many of the causative bacilli, the conditions have been altered completely. Already, Sir Leonard Rogers states, for the first time in the long struggle against leprosy in the Hawaiian Islands, numerous early cases have come forward in the more curable stages, and asked for the new treatment, and the same all-important change is taking place in India and China. In short, the outlook for treatment, and especially for preventive treatment in the early stages, is more hopeful, although as yet it is too early to make positive statements. A few typical early cases treated by Rogers himself have now remained free from all signs of the disease for at least three years, while the infectivity of the disease is greatly reduced or completely removed in successful cases.

**Reforms in Mental Treatment.**—Reforms in the treatment of mental diseases or aberrations are in progress in this country. It has been recognized for some time that the treatment of mental cases generally was not based upon an intelligent foundation. It is now beginning to be understood that several types of mental disorder are capable of a rapid cure if taken in an early stage and treated rationally. It is believed now that some forms of mania have their origin in a physical cause. Dementia præcox, for example, is thought to be due to toxemia arising from gastro-intestinal troubles. The call for reforms in the treatment of the insane has been considerably hastened by scandals which have arisen with regard to the management of asylums. Viscount Cave, the Lord Chancellor of Great Britain, speaking recently on the subject, said that the position of those who needed mental treatment, or were recovering from mental affliction, had been engaging the special attention of the Government. Two things, he believed, were needed: First, they required some better machinery for the mental treatment of those cases which were still of a doubtful character and which might be easily curable, before resort was had to the machinery allowed by the present law. They need provision for mental treatment without certification or any formal step of that kind. He had reason to believe that proposals would shortly be made under which that treatment might be given. It must be very carefully done. They had to take care that the person to whom treatment was offered was willing and desired to take advantage of it, and that he or she could at any time, if mentally able to do so, withdraw consent and resume full liberty. They had to take care that those who had not the power of will which would enable them either to submit to treatment or withdraw from it were very carefully safeguarded against any mischance, and such treatment must be strictly limited in time, for it ought to be confined to cases which were, or were believed to be, curable. Subject to these precautions, in his opinion, something might be done to help people who were in that position and to protect and save them from that certification, or that formal order, which many of them so greatly dreaded.

**Health Insurance and Labor.**—A reduction is made of £4,388,412 on the Health, Labor and Insurance Estimates for 1923-24, compared with 1922-23. The details have been issued recently in a White Paper. Of the above total £3,008,352 is saved on the Ministry of Health. Salaries, wages and allowances are down by £106,678, but the largest decrease is £920,000 in grants towards the deficit on housing schemes, which now stands at £8,710,000. Another big fall is that of £515,400 in grants in aid of sickness, disablement, maternity, etc., benefits under the Health Insurance Acts. Grants in respect of unemployment schemes have risen by £650,000. The Ministry of Labor re-

quires £16,187,005, which represents a saving of £1,554,582. Contributions to unemployment insurance under various headings total £13,042,000, an increase of about £295,000. The grant in aid of the expenses of the International Labor Organization (League of Nations) is £33,880, compared with £25,988. The British Budget this year is £101,515,848 over the estimate made by the late Chancellor of the Exchequer last year. The income tax alone has produced £50,000,000 more than Sir Robert Horne, the late Chancellor, estimated it at.

**Panel Practice.**—It is difficult to say whether panel practice, that is, practice under Lloyd George's Insurance Act, is popular or not. It is certainly unpopular with medical men who have not joined the panel, as it took a large number of their private patients, as it must be borne in mind that under the Insurance Act very many became panel patients who up to that time had been private patients. It is probably popular with the panel doctors, although many of them have hard words to say of the system. However, it is certain that they greatly prefer it to the old style club practice—they are better paid, by far. As for the approved societies, the old-time clubs, panel practice does not seem to be popular with their members. They complain that they are not, frequently, properly treated and that they often fail to obtain the best quality of medicine. But really, it appears to many who look beneath the surface that the true object of the approved societies is to dominate their medical men and to impair and finally destroy their independence. The policy pursued by these societies is regarded by some as the insertion of the thin end of the wedge leading to the nationalization of medicine. At the present time, however, it appears as if there might be in the near future a revolt of panel practitioners. There are dark clouds on the panel horizon. At the present time the panel doctor under the National Insurance Act receives nine shillings and sixpence, nearly two dollars and a half per annum per-patient, of which sum two shillings and sixpence, rather over half a dollar and ten cents, is paid by the approved societies. A recommendation by the Government Actuary that when the present agreement terminates the payment of two shillings and sixpence, made voluntarily by the approved societies, should cease, has spread consternation in the ranks of the panel practitioners. At the time of writing, the Insurance Acts Committee, representing the panel medical men, is arranging for protest—the word "strike" is hardly applicable to medical men. They would not cease work but would attend their panel patients on the same terms as ordinary patients, and not on the terms prescribed by the Ministry of Health. It should be borne in mind that panel doctors are accepting now lower fees than they were originally awarded. A Board of Arbitration in 1919 awarded doctors eleven shillings a year a head for panel patients, but as a result of an appeal by the Ministry of Health they unconditionally gave up one shilling and sixpence. It is felt that if another two shillings and sixpence is taken away, that even if there is not a general revolt on the part of the panel practitioners, that, at any rate, the services of most of the best practitioners would be lost. On the other hand, officials of approved societies say that the panel medical men are more than adequately remunerated and state their view that no doctor will be so foolish as to give up from £500 to £1200 a year, without bad debts and without having to supply medicine. The situation is serious, but by the time this letter is published will have come to a head: the clouds will have dispersed or the medical profession may be almost in a state of chaos.

**A Text-Book of Medicine.**—A text-book of the practice of medicine by various authors, edited by Frederick W. Price, M.D., F.R.S., Edin., has been published recently. The work is worthy of especial notice for several reasons. At the present time it is practically impossible for one person to write an exhaustive

text-book. The text-book of value nowadays is the product of several contributors, each an authority on a particular branch of medicine or on one subject. This course has been followed in the instance of the work referred to and the result is extremely good. In fact, it will be no exaggeration to say that in some ways the book is the best ever published. It covers the practice of medicine in a commendably comprehensive manner, and while the entire work reaches a high standard, some of the sections are remarkably good. The section on circulatory diseases by the editor is a case in point, as is that on the infectious fevers by Dr. C. R. Box, and the diseases of the nervous system by Drs. James Collier and W. J. Adie. Full consideration is given to treatment. It is in one volume and is concise and handy. It is published by Henry Frowde and Hodder & Stoughton.

Death of Sir William Thorburn.—Sir William Thorburn, K.B.E., F.R.C.S., Consulting Surgeon, Manchester Royal Infirmary, died in London on March 18, aged 61 years. He was a great surgeon who did a great deal of original work. At an early period of his career, inspired by Dr. James Ross, he took up the surgery of the nervous system, made it his own. This was pioneer work and pioneer work done so thoroughly that few modifications of it have had to be made subsequently. He served himself through the war at the French Front in Malta and Salonika and lost all three of his sons. He retired a few months ago, and his wife died with tragic suddenness soon after his retirement. This sad event seemed to snap his last hold on life and he passed away broken in health and spirits.

#### NOTICES.

#### THE MASSACHUSETTS PUBLIC HEALTH CONFERENCE.

The attention of the Fellows of the Society, and especially those in and around Springfield, is called to the very interesting and instructive program of the Massachusetts Public Health Conference, to be held in Springfield April 26, 27, 28.

At this Conference public health will be discussed from many angles by speakers of recognized ability.

Fellows are urged to give all the support possible to this Conference, both by personal attendance and by advising and urging their friends to attend the meetings and to give their active and moral support.

In this Conference many health organizations have been induced to join in holding a series of meetings open to the public.

As the medical profession is recognized throughout the entire program in conjunction with many able workers in allied activities, it would seem that we should not fail to support in every way this effort for better health among all the people.

Public Health Committee of the Massachusetts Medical Society.

ANNIE LEE HAMILTON, Secretary.

#### ARRANGEMENTS OF THE SALT LAKE COUNTY MEDICAL SOCIETY FOR THE ENTERTAINMENT OF VISITORS.

The Salt Lake County Medical Society is arranging for the entertainment of visitors who may be able to stop over en route, either going to or coming from the meeting at San Francisco. The stopover here can be made inexpensive. Our Society has already appointed committees to greet and assist in making arrangements to see the city and, if possible, some of the surrounding territory, which may include wonderful

mountain drives; a visit to Saltair, which is situated on Great Salt Lake; and a visit to the great copper mines in this vicinity.

Large parties intending to make this stopover are requested to give us notice as far in advance as possible as to the number in party and length of time of stopover. Any inquiries relative to this matter may be directed to Secretary Dr. Floyd F. Hatch, Deseret Bank Building, Salt Lake City, Utah.

#### CENSORS' MEETINGS.

The Censors for the several districts will meet for the examination of applicants for fellowship on the first Thursdays of May and November.

The Censors for the Suffolk District will examine applicants residing in that district and also applicants who are non-residents of Massachusetts.

Applicants for fellowship should apply to the Secretary of the District Society of the district in which they reside (have a legal residence) at least one week before the date of a given examination, taking with them their degrees in medicine.

#### BRISTOL NORTH DISTRICT MEDICAL SOCIETY.

##### ANNUAL MEETING.

Taunton Woman's Club, Thursday, April 26, 1923.

##### Program.

6.15 P. M. Business Meeting, for the election of officers and the transaction of other business which may be presented.

6.45 P. M. Supper.

7.45 P. M. Dr. Joseph W. Courtney, of Boston, will speak on "Encephalitis endemica."  
ARTHUR R. CRANDELL, M.D., Secretary.

#### UNITED STATES CIVIL SERVICE EXAMINATIONS.

The United States Civil Service Commission announces open competitive examinations for the positions of trained nurse, and trained nurse (psychiatric).

The examination will be held throughout the country on June 6. It is to fill vacancies in the Panama Canal Service, at an entrance salary of \$110 a month for female nurses, and \$125 a month for female nurses (psychiatric); and an entrance salary of \$115 a month for male nurses, and \$130 a month for male nurses (psychiatric).

For the position of trained nurse, applicants must have been graduated from a recognized school for trained nurses which requires a residence of at least two years in a hospital giving thorough practical and theoretical training, or furnish proof of graduation within six months from the date of the examination, and have had at least three years' experience in a modern, well-equipped hospital, including the experience prior to graduation; or male applicants who have not had such experience must have served at least one three-year enlistment in the Hospital Corps of the United States Navy, or have had at least three years of active service in the Hospital Corps of the Army. For the position of trained nurse (psychiatric), applicants must have been graduated from a general hospital or a hospital for the care of the insane, requiring a residence of at least two years and giving thorough practical and theoretical training, and have had at least one year's experience, since graduation, in a hospital for the care of the insane.

Competitors will be rated on the following subjects: Anatomy and physiology, hygiene of the sick room, general nursing, surgical nursing, obstetrical nursing, and training and experience in nursing.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board

of U. S. civil service examiners at the post office or customhouse in any city.

The United States Civil Service Commission announces open competitive examinations for Inspector, Antinarcotic Act; Agent, Antinarcotic Act. The receipt of applications will close May 15. The examinations are to fill vacancies under the Internal Revenue Service of the Treasury Department, at entrance salaries ranging from \$1800 to \$2250 a year, plus the increase of \$20 a month granted by Congress.

Applicants for the position of Inspector must have graduated from a recognized college of medicine or pharmacy, or from a college of recognized standing with special work in pharmaceutical chemistry, and have had at least one year's experience in medical or pharmaceutical work; or must have completed at least one scholastic year of such course and have had at least two years' experience in medical or pharmaceutical work. Applicants for the position of Agent must have had at least one year's recent experience in the investigation of major criminal activities and in securing evidence necessary to the arrest and conviction of criminal violators of law or military regulations; or at least six months' recent and continuous experience in investigating the illicit traffic in narcotic drugs.

#### SAMUEL FULLER MEMORIAL FUND.

The following subscriptions have been received and are herewith gratefully acknowledged:

19. Previously acknowledged .....	\$15.00
20. Edward Mellus, Newton .....	5.00
21. James A. Spalding, Portland, Maine .....	5.00

#### CASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING APRIL 7, 1923.

Disease.	No. of Cases.	Disease.	No. of Cases
Chicken-pox .....	132	Septic sore throat....	1
Diphtheria .....	135	Suppurative conjunctivitis .....	34
Dog-bite requiring antirabic treatment....	9	Syphilis .....	36
Encephalitis lethargica	9	Trachoma .....	2
German measles.....	13	Typhus .....	1
Gonorrhea .....	83	Tuberculosis, pulmonary .....	135
Influenza .....	36	ary .....	1
Malaria .....	1	Tuberculosis, other forms .....	24
Measles .....	849	Typhoid .....	13
Mumps .....	239	Whooping cough.....	353
Ophthalmia neonatorum .....	11	Epidemic cerebrospinal meningitis....	3
Pneumonia, lobar.....	98		
Scarlet fever.....	322		

WEEK ENDING APRIL 14, 1923.

Disease.	No. of Cases.	Disease.	No. of Cases.
Anterior poliomyelitis .	1	Ophthalmia neonatorum .....	26
Chicken-pox .....	124	Pneumonia, lobar .....	139
Diphtheria .....	149	Scarlet fever .....	313
Dog-bite requiring antirabic treatment....	1	Suppurative conjunctivitis .....	8
Encephalitis lethargica	4	tivitis .....	30
Epidemic cerebrospinal meningitis .....	2	Syphilis .....	4
German measles .....	18	Tuberculosis, pulmonary .....	129
Gonorrhea .....	61	ary .....	1
Influenza .....	15	Tuberculosis, other forms .....	28
Malaria .....	1	Typhoid .....	9
Measles .....	901	Whooping cough .....	373
Mumps .....	275		

#### SOCIETY MEETINGS.

The annual meeting of the Massachusetts Medical Society will be held in Pittsfield, June 12 and 13.

#### DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District:—Hyannis, May 3, 1923.  
Bristol North District:—Annual Meeting at Taunton, April 26.  
Bristol South District:—Fall River, May 3, 1923.  
Essex North District:—Lawrence, Y. M. C. A. Building (Annual Meeting), May 9, 1923.  
Meetings of the Suffolk District and the Boston Medical Library, at the Library:  
Middlesex East District:  
May 9, 1923:—Annual Meeting.  
All meetings except the Annual Meeting will be held at the Harvard Club in Boston. A. E. Small, Secretary.  
Worcester District meetings are scheduled as follows:  
May 9, 1923:—Annual Meeting and banquet.

#### STATE, INTERSTATE AND NATIONAL SOCIETIES.

NEW ENGLAND PEDIATRIC SOCIETY:—Meeting May 11, at Boston Medical Library.  
April, 1923:—Massachusetts Association of Boards of Health, April 26, 1923, Boston: W. H. Allen, Mansfield, Mass., Secretary.  
April, 1923:—Massachusetts Public Health Conference will be held in Springfield, April 26-28, inclusive. Dr. Eugene R. Kelley, Chairman.  
May, 1923:—Massachusetts Society of Examining Physicians (date and place undecided). American Pediatric Society meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind.; H. C. Carpenter, Secretary.  
May, 1923:—Boston Association of Cardiac Clinics. Meeting May 17, 1923, at 8.15 P. M., Children's Hospital. Subject: Rheumatism and Chorea and Heart Disease.  
June, 1923:—The Nineteenth Annual Meeting of the National Tuberculosis Association will be held in 1923 in Santa Barbara, Calif., from June 20 to 23, inclusive, in the Recreation Center.  
June, 1923:—American Medical Association, San Francisco, June 25-29, 1923; Olin West, Chicago, Ill., Secretary.  
July, 1923:—Massachusetts Association of Boards of Health, July 26, Nantucket; W. H. Allen, Mansfield, Mass., Secretary.  
October, 1923:—Boston Health Show will be held in Boston, October 6-13, inclusive.  
October, 1923:—Meeting of the American Health Association will be held in Boston, October 8-13, inclusive.

For list of Officers of the Massachusetts Medical Society, see page 516 of the Advertising Section.

#### INVITATION TO PHYSICIANS.

Members of the medical profession are cordially invited to join in staff rounds on the medical service of the Peter Bent Brigham Hospital. These are held Saturday mornings from 10 to 12 in the medical wards. They consist of the demonstration and discussion of selected cases showing features of unusual interest or those on whom the diagnosis is not clear. Visitors can join in the visit for any part of this 10-to-12 period.

HENRY A. CHRISTIAN,  
*Physician-in-Chief, Peter Bent Brigham Hospital.*

#### NOTICE TO DIRECT SUBSCRIBERS.

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#### BACK NUMBERS WANTED.

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